



• Aviation Issue •

GIANT SIKORSKY S42 Clipper ship, powered with four 750 H.P. geared "E" Hornets equipped with four Hamilton Standard controllable pitch propellers. This plane pioneered the trans-Pacific route which Pan-American Airways recently inaugurated.

CONNECTICUT INDUSTRY

FEBRUARY
1936



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FEDERALIZATION OF CONNECTICUT'S WATERWAYS

Eleven years ago, the Connecticut General Assembly enacted a law which provided for the creation of the State Water Commission and outlined its powers and duties. Under the able directorship of General Sanford H. Wadhams and with the helpful guidance of the other members of the Commission, Mr. George T. Kimball and Dr. Walter R. Steiner, great improvement has been wrought in the condition of our waterways and valuable contributions made to the knowledge of methods for preserving future water supply. Consequently, Connecticut is in the forefront of those states which have recognized the existence of a problem and have taken steps toward solution.

The problem of volume and purity of water supply, however, is not entirely an intrastate one, but rather interstate. Recognizing this fact, the Connecticut General Assembly has from time to time aided in the formation of interstate commissions composed of representatives of adjoining and contiguous states. These commissions are attempting to form interstate compacts for the study of water supply and purification. Such commissions are at work with the states to the north and south of us. The compact idea, as far as water problems are concerned, has been generally recognized as the best and wisest method of handling a problem that is at once intrastate and interstate.

In general, the people of the State of Connecticut are, without question, opposed to federalization of any matter or thing which can be more effectively, honestly and economically controlled by an individual state or by a group of states in compact. Consequently, we cannot look with favor upon any effort to federalize the waterways of the state.

It is reported that our senior Senator will have an anti-pollution program ready for presentation to the Wild Life Conference called by the President. Last year, Senator Lonergan joined with the Secretary of War in calling a conference to discuss the problems of water control and purification. The reading of the records of that conference and its successors gives clear indication of domination by those who desire federalization. Our Congressman-at-Large, Mr. Citron, has proposed a "Connecticut River Authority"—another federalization plan.

It is to be hoped that our representatives who have recognized the existence of a problem will first determine, to the last detail, what the State Water Commission has done, what it plans to do for the future, and what the various commissions are doing in conference with nearby states. It is to be hoped that both will see the wisdom of the compact plan already in operation as against objectionable federalization.

E. KENT HUBBARD

LAST MONTH IN WASHINGTON

Summed up in Joe Louis' style the New Deal administrators went "down for the count" last month, and would have collected heavily on headache insurance if some company had been optimistic enough to offer it.

Pain. Chief pain-producer was the Supreme Court's invalidation of Triple A and the subsequent order releasing escrowed processing tax dollars to the payors. Wholesale litigation for tax processing tax refunds is in the making; so are a number of schemes for doing another way, substantially that attempted by the "farm alphabet," and a few tax plans for finding the money to pay the farmers their regular monthly checks until a "new tack" is taken in the sagging farm product limitation sails. One of the methods mentioned in AAA discussion is the creation of 48 separate Triple A's to be subsidized by Federal government, as in the case of advances to states for road building, education and other purposes whenever state set-ups meet with Federal approval. Other plans in the New Deal incubator have been frowned upon by lawyers as being equally as unconstitutional as their fallen predecessor. Nevertheless, as a bid to stir popular clamor for constitutional amendment one or more of these plans are likely to be fed into the Congressional hopper. They will serve as a guiding trial balloon if nothing else.

Second frown-etcher was the President's evening message to Congress on the "state of the Union" which, outside of a few details on neutrality legislation was a precedent-breaking No. 1 political speech opening his 1936 campaign for reelection. In the words of David Lawrence, most eminent non-partisan commentator, "Mr. Roosevelt stimulates class warfare by his address to Congress; he preaches hate and he preaches class bitterness. He has rendered us a message on the state of disunion in America today. He mistakenly glories in the discord he himself has wrought."

Then came the President's "me and Jackson" speech at the \$50 per plate Jackson Day Rally dinner at the Mayflower Hotel on the evening of Jan. 8. The net from this banquet and hundreds more Jackson day banquets throughout the nation is believed to be sufficient to melt the Democratic party deficit, and perhaps leave a tidy sum for the 1936 campaign "war chest."

Deficit. The President's budget message of Jan. 6 listed tentative budget estimates for 1937 totalling \$6 billion 753 million without including a possible one billion or more for relief and up to two billion and possibly more for payment of the bonus, which has since become law. Without the two unknown factors—work relief and the bonus—the President estimated a deficit of one billion ninety-eight million. Adding a conservative three billion for the other two unknown items will boost the debt by a round four billion.

The total deficit during the Roosevelt administration including the 1937 possibilities may easily reach fifteen billion, or three times that of its predecessor about whose stewardship, the President remarked on March 10, 1933, "For three long years the Federal Government has been on the road toward bankruptcy." And this was spoken of a deficit of approximately five billion. Thus, if we are to take the President's prediction literally and add it to the predictions of those opposed to Roosevelt spending policies we have convincing evidence that we are head-

ing for bankruptcy, unless the "feast of spending" can be turned by threat or dictum of the polls into a supper of Ben Franklin thrift.

Work Done. Big work news of the month was the passage of the Bonus Bill, issuing Baby Bonds to be cashed or kept, as the veteran pleases. It was passed, mildly vetoed then repassed. The Congress, at least the great majority of that august body, now has definitely taken the spending prerogative from the executive head, who has held the reigns since March, 1933. The President wants more taxes in a big way, but Congress is unsympathetic toward spreading the base to more millions of the middle class until after election. The headache must be more intense the longer the issue is delayed. Chances are good for passage of some form of taxes on processors, higher business taxes, inheritance taxes and personal income surtaxes (higher brackets).

How to keep America out of war, or neutrality legislation, is bulking large as the present business before Congress since the present neutrality law dies February 29. To give or not to give the President discretionary powers on commodities to be barred from trade and under what circumstances, are the questions to be solved. The argument will be bitter. Adoption of so-called McReynolds bill requiring the President to embargo shipments of war implements to all belligerents, seems most likely to be the final outcome of debate.

For national defense over one-half billion is likely to be recommended for Army or 25% more than last year. Military Committee scheduled to recommend the purchase of 800 new war planes annually for 5 years. Naval appropriations committee expected to recommend appropriations large enough to bring the Navy up to treaty strength. President is said to be ready to attempt building a new "New Deal" on the basis of the Federal spending and taxing power, rather than to make strong criticism of the Supreme Court the central theme of the coming campaign.

The status of chief bills of particular interest to industry are: Passage by House of \$879,743,905, independent offices appropriation bill and a deficiency bill of \$58,204,000, including \$42,664,500 for the New Social Security Act.

Passed House, H. J. Res. 321, to consent to minimum wage compacts between all New England States (except Vermont).

Passed House, H. R. 3940 to amend bankruptcy law regarding creditors and transfer appointments.

Hearings on the Ellenbogen Bill, to regulate the textile industry somewhat like the Guffey Bill regulates coal, held Jan. 27 before House Labor Committee. Mr. Nickerson of Cheney Brothers opposed it for Connecticut textile manufacturers. Deputy Labor Commissioner Fitzgerald appeared as the representative of Governor Cross approving, in general, federal regulation of the industry. Another Wheeler-Rayburn Bill to materially broaden powers of Federal Trade Commission is in the hopper, backed by the same group as recommended the "death sentence" for Utilities. Senator Black's 30-hour week bill, the O'Mahoney industrial licensing proposal and the Walsh Bill are all warming over committee fires. The Walsh Bill, compelling NRA stipulations for government contractors and borrowers, is opposed by conservatives and is being talked up by Secretary Perkins and several others.

AVIATION

Phases of air flotation: gas bag . . . basket balloon with animals . . . balloon with men . . . dirigible . . . glider . . . Wright-powered airplane . . . Increased size and efficiency of plane, motors and propellers, chiefly post-war developments. "Barnstormers," Lindbergh, record-breakers and organized air service companies popularized air transport. Connecticut ranks high in the field. Reason: reservoir of good mechanics, early flight enthusiasts, well-administered state aviation laws, and above all, its front rank producers of the industry, the units of the United Aircraft . . . Pratt & Whitney Aircraft (engine builder) . . . Chance Vought (airplane builder) . . . Sikorsky (airplane builder) . . . Hamilton Standard Propellers . . . United Airports . . . United Aircraft Exports

EDITOR'S NOTE. *This is the nineteenth in a series of articles outlining Connecticut's position in various industries. Aviation development is the "Monte Carlo" of Connecticut's industries, for its successful developers have staked as much as a million on an engine gamble and hundreds of thousands in many experimental tasks in airplane building, before knowing whether the final outcome would be scrapped or purchased in profitable numbers. Results show the remarkable skill of Connecticut's aviation group in interpreting the advance needs of the industry. All plants of the United Aircraft are humming beehives of activity, with one unit in Bridgeport literally swamped with orders.*

ALTHOUGH it took 2135 years for the seed sowed by Archimedes, the Greek philosopher, to sprout the first successful heavier-than-air flight by motive power, and 15 more years to firm its roots, the aviation industry moved swiftly through the "barnstorming," mail flying, scientific testing, wild-cat promotion, and successful commercial airline eras in the past 18 years to become as casual as the morning cup of coffee or the automobile industry to thousands of business men and women. Outside the war veteran victims of an aerial bomb, who still shudder at the drone of motors overhead, millions go about the streets daily so accustomed to "sky music" that they scarcely leave either petty or great thoughts long enough to risk a "kink in their necks" for a look at the latest grand "dolphin of the air." Such is the complacency with which the average American accepts miracles of scientific achievement attained at tremendous cost in money and human life, once they are well along the road to success. Plummeting through space

at 353 m.p.h., or nearly six miles a minute, and averaging nearly 300 miles per hour cross-continent, as did Howard Hughes, the dare-devil pilot-movie producer last October and in January, respectively, is a headline thrill for only a night, then forgotten by all save those interested in developing new planes, new motors and propellers for still greater performance. Like ancient eggs at an old fashioned mid-western Halloween, one air record after another is smashed against a background of outdated ideas, often less than a year old. In this race for a place in the aviation sun, men under 45 occupy the majority of the box seats on the ground and in the air.

Archimedes, despite his vision and the law he propounded in 232 B. C., which governed the flotation of bodies in liquids and gases, visualized no flotation in air beyond that of a "hot air" bag or balloon. The Montgolfier boys—Joseph and Etienne—were the first to demonstrate the possibility of floating a hot-air balloon—and that performance of reaching an altitude of 6000 ft. and traveling $1\frac{1}{2}$ miles was not accomplished until June 5, 1783, when the balloon without baggage performed the feat over Annonay, France. In September, 1783; a "Montgolfière," as the hot-air balloon was called, took a duck, a cock and a sheep for a two mile ride—and we are told made a happy landing. The first ascents were also made by humans November 21 and December 1 of the same year. Des Roziers and the Marquis d'Arlandes made the first flight over Paris, staying in the air 25 minutes while covering a distance of $1\frac{3}{4}$ miles. Prof. Charles and M. Robert made the second human flight—the first in a hydrogen filled balloon—starting from Paris and landing at Nesle, 25 miles away. After discharging M. Robert from the basket at Nesle, Prof. Charles then ascended to a height of two miles.

In America, the first balloon flight was made by Peter Carnes over Baltimore, Md., July 17, 1784. Until 1850 when two Frenchmen, Julien and Giffard, built and flew a torpedo-shaped airship propelled by a screw propeller, there were no appreciable advances made in the art of flying. Two years later Giffard made the first successful flight in a dirigible steered by a rudder and propelled by a steam engine driving a screw. Then Harlein of Germany built a dirigible in 1872, driven by a gas engine which drew its fuel



BUSINESS end of a Pratt & Whitney Twin Wasp Motor with a Hamilton Standard propeller cutting the air at full throttle.

from the balloon itself. Encouraged by the then scanty progress made in the construction of lighter-than-air machines, Donaldson, Ford and Lunt made the first attempt at a trans-Atlantic flight in the balloon "Graphic,"

from Brooklyn, N. Y., October 7, 1873, but instead became acquainted with a few Connecticut Yankees where they landed at New Canaan, Connecticut.

The next real progress was that made in the development of heavier-than-air craft, first in Germany, then in England and the United States. Lilienthal of Germany made the first successful glider flight near Berlin in 1891; Pilcher of England in 1895 and Octave Chanute of Indiana in 1896; Orville and Wilbur Wright in 1900. But during the same period (1898)

airplane flight in Europe by Santos Dumont, and until after the World War, aviation development in terms of trained pilots, flight records, motive power and design outstripped that of the United States. An idea as to the backwardness of the United States in the development of aviation in its early stages may be gained by noting the number of trained pilots in Europe as compared to the United States in 1911, just eight years after the Wright Brothers had demonstrated the practicability of flight. France had 353 pilots; England 57; Germany 46; Italy

it and gave hair-raising demonstrations to draw the crowds to most any flat surfaced, unobstructed field. Once the crowds were assembled, usually on a Saturday or Sunday afternoon or holiday, came the painful job of extracting from a sufficient number a \$5 bill for a 15 minute flight, to pay expenses and leave a little for repairs that came too regularly, and "3 squares" a day and a bunk. They were the true "medicine men" of aviation, advertising the thrills and safety of airplane travel to hundreds of thousands of curious "well grounded" Joe Citizens. Slowly, yes painfully so, these "air buccaneers" gained converts who would squander \$5, later \$3, \$2 and finally \$1 to get the feel of flying through space at from 60 to 90 m.p.h. Meantime a handful of American airplane builders, and a very few strictly engine builders were developing new types of planes and engines. Their difficulties were legion. The Army and Navy constituted the principal market, and they were not buying in sufficient quantities to spur the development of aviation. There were not enough Joe Citizens who wanted to risk their necks at this stage of the game, and sky riding came too high. The commercial development of aviation was just an infant in the "cradle of progress."

Gradually plane design commenced to outgrow the glorified "box kite" look and take on the "streamlined" appearance so recently "discovered" by other industries. With the development of lighter and stronger metals and more powerful engines away went the labyrinth of wiring that trussed the wing supports, and in their places were substituted trim metal braces. With better engineering knowledge, came more



AIRVIEW of offices and factories of Pratt & Whitney Aircraft and Chance Vought Aircraft Divisions of United Aircraft Mfg. Corp. Together they occupy nearly 750,000 square feet of floor space in modern plants built in East Hartford in 1929.

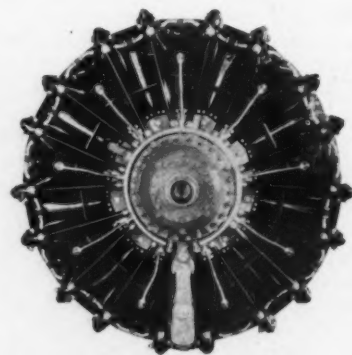
Count Ferdinand von Zeppelin began building his first rigid airship which was given its first trial flight from a floating hangar on Lake Constance in 1900. France took a hand in dirigible construction when a semi-rigid dirigible constructed by Julliot, a French engineer, for the Lebaudy Brothers, made 29 successful flights within a year, beginning in 1902.

Honors in progressing aviation were divided in Europe among France, England and Germany up until the World War, with Germany far in advance, as she still is in the art of rigid dirigible construction. But it remained for the inventive genius of the United States to blaze the way toward the present modern development of heavier-than-air craft, actually achieved on Dec. 17, 1903, by the Wright Brothers, and first officially demonstrated Sept. 26, 1905, by Orville Wright at Dayton when he flew slightly over 11 miles in 18 minutes and 9 seconds. Beginning in 1906 with the first successful

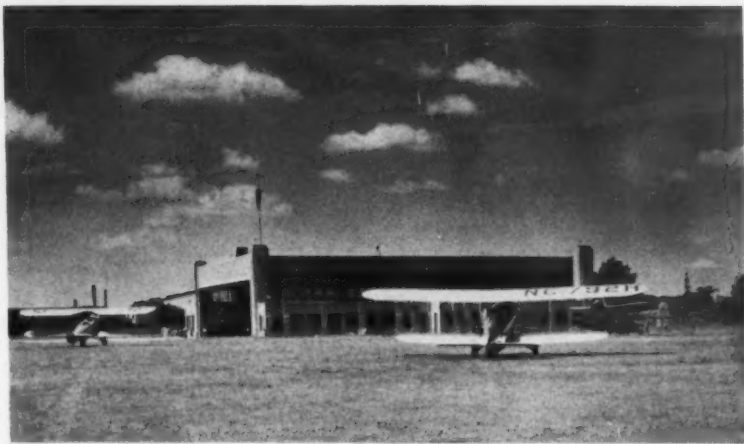
32; Belgium 27; and the United States 26. The European War not only stimulated airplane design, but the use of planes for the first time on a large scale. While the United States entered feverishly into the building of planes and the design of engines shortly after its entry into the War in 1917, millions were spent with few immediate results. The great majority of American aviators used either French or English planes although thousands received their early training in American machines.

Development from 1918

From the start of the first regular airmail service in the United States, established between New York and Washington May 15, 1918, until the end of 1925 may be labeled as the "barnstorming" era of flying. Ex-Army and Navy aviators, many of whom had lost out on their peace time positions, managed to secure an old military or cast-off "crate," repaired



PRATT & WHITNEY "E" Hornet (geared) motor big brother to the original Wasp. It is rated at 750 H. P.



UNITED AIRPORTS at Rentschler Field, East Hartford, showing Hangar No. 1.

popularity for the birdlike monoplane (single plane surface), heretofore considered less safe than the biplane.

Throughout this period when the industry was in swaddling clothes encouragement was given by organizations and individuals who offered worthwhile prizes for certain notable flights. With this stimulus, and that prompted by the needs of national defense, Army, Navy and individual flyers broke more flying records each succeeding year. The Atlantic had been spanned by the American NC4 and in non-stop airplane flight by the British; U. S. Army flyers had skirted the globe on the wings of two Douglas transport planes traveling 27,553 miles. Later Army planes covered a 20,000 mile good-will trip around the Latin-American countries; Lieutenant Al. Williams had hung up a 7-year American speed record of 266.64 m.p.h.; Commander Rodgers had flown a seaplane for a non-stop record of 1992 miles over the Pacific from San Francisco, landing near Honolulu, Hawaii; air mail routes spanned the U. S. from coast to coast with regular air mail service; the Radio Compass was used in 1920 for the first time to direct aircraft movement; and dawn-to-dusk flights between east and west coasts were accomplished facts. Many of the individual pilot "barnstormers" either started their own "flying service" (taxi work, instruction and short sight-seeing flights) or became connected with such organizations or some newly organized commercial companies. All these and many more notable air accomplishments

were chalked on the American chronological air record before the "great event" electrified a nation of iconoclasts on air travel.

A \$50,000 prize had been offered in 1927 by the Guggenheim Fund for spanning the Atlantic to Europe with a single-engined plane. Joe Citizen had read much newspaper gossip about this one and that one making preparations to start the trip, when suddenly out of the West streaked an obscure mail pilot, Charles A. Lindbergh, with his trim monoplane. Landing in New York without ceremony one evening in May, 1927, he carefully checked his motor, loaded up with fuel, checked his instruments and waited for good

weather signs. On May 20, without a word of warning or a mechanic, and with only a black cat for company he soared like a lone eagle off U. S. soil northward, then straight over the restless Atlantic toward Paris. All America was electrified, watchful for news flashed over the radio and in the press. Thirty-three and one-half hours later on May 21, a very tired and shy young man crawled out of his closed cockpit in Paris, France. By his epochal feat, coupled with his native modesty and his subsequent tour of the U. S. covering 82 cities and 22,350 miles in the interest of commercial aviation, he dramatized effectively to millions the great possibilities of commercial conquest of the air. Minus this stirring episode which shook down America's air-thinking to a plane where future huge profits could be seen with the coming of larger, faster and safer transports, the U. S. might well have floundered in the doldrums of mediocrity for another 5 to 10 years, almost hopelessly outstripped by Continentals and the British.

Connecticut's Position in Aviation

The land renowned by Yankee Peddler salesmanship, mechanical ingenuity born of rigorous necessity, and reticence worth understanding, could scarcely remain true to its mechanical precepts without taking some part in a development of such potential magnitude as the aviation industry. Connecticut had been a prominent pioneer in the automobile industry, but lost out to "points west" in closer prox-



SIKORSKY AIRCRAFT Division plant of United Aircraft Mfg. Corp. at Stratford, a suburb of Bridgeport.

imity to markets. For similar reasons Connecticut lost the bulk of the heavier rubber industry after giving it the first great impetus through the discovery of vulcanization by Charles Good-year of Naugatuck. But the aviation industry, fostered as early as 1908 by Hiram Percy Maxim, and later by the Hartford Aero Club which Mr. Maxim formed and headed to promote air-mindedness; by Ex-Governor John H. Trumbull, former Senator Hiram Bingham and a number of war-trained pilots, had its first real beginnings in the manufacturing end of the business in 1925, when the Pratt and Whitney Aircraft Co. was formed and completed the construction of its first air-cooled engine.

Prior to 1925, water-cooled aircraft engines had a complete monopoly in the higher-horsepower fields in the United States. Air-cooled engines although possessing many inherent design advantages, had been limited in size to around 250 horsepower, and many competent engineers believed that technical difficulties would preclude their development to anything appreciably beyond that figure. But a small group of pioneers, headed by F. B. Rentschler and George J. Mead, believed otherwise. They were confident that they could build a successful air-cooled engine of 400 horsepower, and they received encouraging assurance from the Navy that such an engine would find a ready welcome in the military field. With this stimulus they embarked on their great adventure, and began casting about for a logical manufacturing location. Hartford looked best because of its ready accessibility to markets and its fame as the home of precision manufacture. So on a warm June day in 1925, Mr. Rentschler, the executive head, in company with Mr. Mead, the engineer, came to Hartford and closed a manufacturing agreement with the Pratt and Whitney Co. (Machine Tool and Precision Gage Makers) whereby a small manufacturing space, formerly occupied by the Pope-Hartford Automobile Co., was leased to start operations. Here was established, in August, 1925, a small office with three cubicles divided by wallboard for the use of Mr. Rentschler, Mr. Mead and Donald L. Brown who had come with them to be factory manager; a slightly larger space for a drafting room into which A. V. D. Wilgoos, E. A. Ryder, Ed. Godfrey and Phil. Treffert moved; and a still larger space adjacent to the office presided over by J. J. Borup, superintendent.

The engineering staff of this new organization had been associated either with each other or with Mr. Rentschler or Mr. Mead in some cases as long as 15 years. By Christmas of 1925, the company occupied 3,000 square feet of floor space and had a group of 25 employees.

Tests of the first engine, rated at 425 H.P. (then unnamed) were so satisfactory in meeting the requirements of the Bureau of Aeronautics that orders for twelve engines were received from the Navy. That order, completed in 1926, led to larger orders for the new engine—christened "Wasp." The Navy tried out the engine under all operating conditions. So successfully did it meet the rigorous test requirements that the Navy made its historic decision to standardize on air-cooled power plants and orders for 200 more Wasps resulted.

Wasp engines. This Boeing order marked the beginning of the company's commercial business which has since grown to such large proportions. Shortly afterward, in 1928, Pratt & Whitney aircraft licensed the B.M.W. firm in Germany to build Pratt & Whitney engines. It has since produced them continuously for more than 7 years.

By the end of the first two years of operation employment at Pratt & Whitney Aircraft had increased to 275 and five World Records had been returned to the United States because of the superior efficiency of its light-weight-per-horse-power Wasp air-cooled engines. Also within this short span of 24 months the Hornet engine—big brother to the Wasp—rated at 525 H.P. at 1900 R.P.M., had undergone successful tests both in the test-house and in the air, powering



ALL-SEEING eyes of the Navy—Wasp-powered Vought Scouts attached to the U. S. S. Saratoga, airplane carrier, flying over the Pacific during naval maneuvers.

Clearly foreseeing the desirability of air-cooled engines in commercial operations, Mr. Rentschler convinced Mr. W. E. Boeing that the new ships which he was building to take over the Government-operated air mail line from Chicago to the west coast should be equipped with Wasps. Thus in 1927 the first commercial air company to carry the transcontinental mail started its operations with 25 new Boeing planes equipped with Pratt & Whitney

a Model 74 Martin Bomber. Increased horsepower at a marked saving in weight over its water-cooled sisters forecast a new era in airplane design which, during the past 8 years, has more than doubled the size and cruising speeds of both the large commercial air liners and Army and Navy bombers. Both the Wasp and Hornet engines demonstrated such phenomenal performance that they have since become standard equipment for do-

mestic airlines and purchased in predominant numbers for Army and Navy planes, and in certain models by the commercial airlines and military forces of many foreign nations.

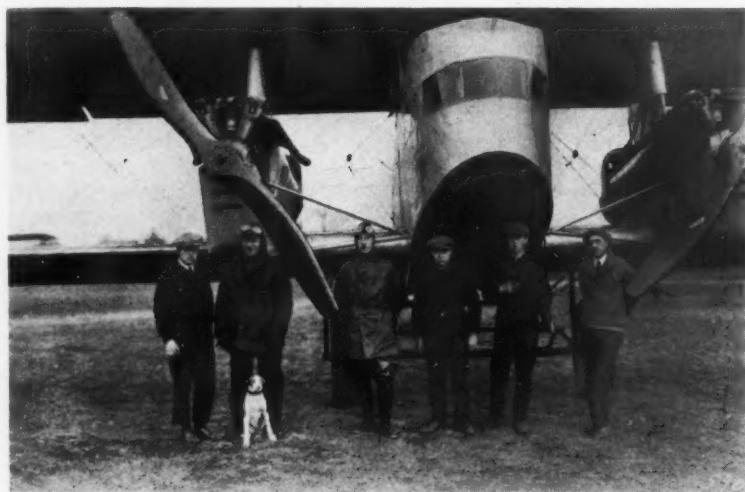
The old axiom that "success breeds success" was never more forcibly demonstrated than by the mushroom growth of Pratt & Whitney Aircraft Co. from an extremely modest nucleus to an organization of some 2000 persons in a decade. Moreover its engine developments were important connecting links between American mediocrity in 1925 and world leadership in aeronautical development—the U. S. position in 1936. October, 1928, marked the first big step of the ex-

the company in recognition of outstanding effort in completing the first experimental Wasp engines. Time takes a leap! 1929 the busy Bee-Hive (as the Pratt & Whitney Aircraft shop is dubbed) employs over 1,000 and spreads its activities over 220,000 square feet of factory space, or 217,000 more than at Christmas, 1925.

Time moves on. It's Christmas, 1929, and the day after. A new "Bee-Hive" has been completed in East Hartford on a 600 acre plot of ground acquired earlier in the year large enough to provide for a multiple expansion of activity. Trolley flat cars and trucks start the gigantic moving operations. Five days of bustling activ-

The latter was the first to be put into regular service with the catapults, and was the mainstay of the early operations on the first aircraft carrier Langley. The success of the operations with these airplanes played a most important part in influencing the historic Navy decision to base all aircraft with the fleet. When an improved model was needed, it was Mr. Vought who suggested to the Navy Department that a 400 H.P. engine was the minimum that could be expected to give adequate performance, and thus paved the way for the Wasp. When this engine was ready, it was the O2U-1, first of the famous Vought Corsair series, that set new standards for military performance and broke 5 World's records with the Wasp. It was the close cooperation between Mr. Rentschler, Mr. Boeing and Chance Vought, that laid the cornerstone of what became the United Aircraft & Transport Corporation. Since the O2U-1 there has been a long succession of Corsair models all contributing to the unquestioned superiority today of U. S. Naval Aviation.

On the birth of the United family Standard Steel Propeller Corporation of Pittsburgh and Hamilton Aero Mfg. Co., of Milwaukee, had been brought together at Pittsburgh to form the Hamilton Standard Propellers—smallest member of the manufacturing group. It was moved to East Hartford in P. & W. A. quarters in October, 1931. After power plants, propeller developments stood next in line between air supremacy and mediocrity. Wood propellers had too many glaring weaknesses. They warped, split and shattered too often for comfort. They had other defects too which most any veteran pilot or aeronautical engineer could tell about. Hamilton Standard engineers were set against just ordinary progress. They wanted and found superiority in their aluminum alloy propeller designs. Their adjustable pitch propellers carved for them the word "standard" on the U. S. aviation horizon. Overstepping this success Mr. Frank Caldwell, Hamilton Standard's chief engineer developed the first controllable pitch propeller (as its names implies the pitch of this propeller can be changed by the pilot to take greater or lesser air-bites) for which he was awarded in 1933 the biggest plumb in aviation prizes,—the Collier Trophy. The Collier Trophy is given each year "for the greatest achievement of aviation in America, the value of which has been thoroughly



SIKORSKY S29, first ship built by Igor Sikorsky in U. S. at hangar on Long Island. Note advancement over this in Hawaiian "Clipper" ship on front cover. Mr. Sikorsky stands near lower end of propeller, 3rd from left in photo above.

pansion program, when United Aircraft & Transport Corporation was formed. Within its fold it embraced:

Pratt & Whitney Aircraft Co., engine builder and fertile nucleus; Chance Vought, specialist in Navy plane construction; Sikorsky Aircraft Co., builder of large transport planes; The Boeing Airplane Mfg. Co., of Seattle, Wash., airplane builder, Hamilton Standard Propeller Co. of Pittsburgh, Pa., makers of metal propellers; and the United Airlines, a trans-continental mail, express and passenger transport line.

Christmas, 1925, saw the 22 Pratt & Whitney Aircraft families partaking of that many turkeys presented by

ity from loading platforms in Hartford to spur track "on location" and to the spots marked on the factory floor lay-out where machines were eased to their new moorings. December 30, 1929, Donald L. Brown then vice-president, turned on the power to start in motion 95% of the company's machinery.

Chance Vought moved into its new plant, "a stone's throw" from the P. & W. Bee-Hive, shortly afterward, to produce all Vought Corsairs in East Hartford instead of its former plant in Long Island City. The two-seater VE-7 and UO airplanes built by Vought in the early 1920's were really the first Navy shipboard types.

demonstrated by actual use during the preceding year."

Not content with these advanced developments, Hamilton Standard has produced in recent months, a mechanism which will automatically adjust the pitch of the controllable propeller to the proper air "bite" under all flight conditions. These controllable pitch innovations have been largely responsible for the development of the present successful high speed, high altitude flying transport planes which now traverse the continent regularly between dinner and breakfast or vice-versa.

Down in Bridgeport, Connecticut (actually in Stratford, a suburb), by the Sound and airport is the modern Sikorsky plant, building America's largest amphibians (combination land and sea landing gear planes) and seaplanes. It was built in 1929, or shortly after being taken into the United family. One of the most colorful of United's leading lights is Igor Sikorsky, 47-year-old Russian refugee to the United States in 1919, who had taken his technique in large doses at the Naval Academy at Petrograd under Czarist rule, and at the Polytechnic Institute of Kiev. Graduating at 19 with ambition and enthusiasm flying too high for the kite-tail of general aviation knowledge, he read Russian novels and otherwise busied himself for 2 years slavishly following the frantic art of building a standard form of helicopter which, we are informed, "went neither up, along, nor anywhere else except into oblivion."

Once he had eluded this sinister form of artistry he proceeded to build the S1 which he used chiefly as a winged auto while seeing the sights of a sizeable chunk of Russia, trying to get the wheezing Anzani 15 H.P. motor to lift the plane off the ground. No luck in the air with the S1, he re-designed and re-engined it as the S2 according to the best knowledge of airplane construction he could secure from watching birds in flight and reading the little information available, since there were no Russian schools of aviation at that early date. After two short low-altitude flights (800 feet the longest and 3 to 4 feet said to be the highest) the ship was damaged beyond repair.

Undaunted by the bad luck, he built S3 in the same year. It flew successfully on several occasions but shortly managed to develop engine trouble over a frozen lake where the ice was too thin to support it. The result was that "schools" of fish had an aviation problem in their midst.

We are told by Cy Caldwell, sketcher of personalities in the May, 1935, issue of *Aero Digest* that Mr. Sikorsky bridged over the sinking spell after S3's icy dive, by "tossing off a couple of vodkas and humming the chorus of the Volga Boatman"; that he proceeded immediately to collect some more wood, screws, nails, bolts, piano wire and determination to begin the construction of another plane. His sixth one took the highest award in the Military Competition at Petrograd. From 1914 to 1917 he built 73 large aeroplanes at the Russo Baltic Car Works in Petrograd for the Russian Army. But even these giants of the air did not stop the Russian Army from a homeward trek from the German Eastern front in 1917.

In March, 1917, when the revolution was staged in Russia, it soon became apparent that Igor, the builder of planes for the Czarist regime, would be persona non grata to proletarian rulers. Departing from his homeland he sojourned in France for two years, where he built a few airplanes for the French Government. Arriving in the United States in 1919 as poor as thousands of other Russian refugees who ran restaurants and a lot more tasks more imaginative, Sikorsky managed to get enough help from his fellow countrymen to build, in an old hangar on Long Island, the S29 2-engine amphibian. Another "refugee" Roscoe Turner from Missouri, flew around in the cigar and movie business.

Since landing in the U. S., Igor Sikorsky has built or supervised the construction of several hundred planes, the majority of which have been fabricated in the new Sikorsky plant. His greatest claim to fame has been the construction of the S42 and S43 clipper ships which have been sold to Pan-American Airways and other air transport systems. Flown by Col. Charles A. Lindbergh, Boris Sergievsky and Edwin C. Musick, the S42 established ten world records for altitude and speed for ships of similar type. This model was recently used by Pan-American Airways in pioneering its present scheduled routes across the Pacific ocean. So successful were the trial flights of these magnificent engined "dolphins of the air and sea" that Pan-American has ordered ten of them for its Pacific line.

The S43 is a smaller amphibian which carries 16 passengers at a cruising speed of 171 M.P.H. (fastest amphibian cruising speed in the world).

With orders for ten of the mammoth S42's and numerous others on

its books, the Sikorsky plant is literally swamped with business—truly a handsome and fitting reward for Igor Sikorsky's indomitable tenacity which overcame apparent insurmountables to make his company the leading builder of multiple engined seaplane and amphibian transport planes.

There have been other attempts outside of the fold of the United Aircraft family to build up new manufacturing units in the aviation field, but none which were able to withstand the lean years to get their chance for success. Among these were: The Whittlesey Mfg. Co., of Bridgeport, builders of Avro-Avian sport planes (started production in 1929 but discontinued later); the Commercial Aircraft Corporation and the Huntington Aircraft Corporation of Bridgeport; the Viking Sea Boat Corporation of New Haven; the Multiple Aircraft Corporation of Waterbury and several others. The Viking Sea Boat Company is understood to be accepting occasional orders for built-to-order planes. True, there are many companies in the state manufacturing parts or accessories for the industry which cannot be classified distinctly as aircraft industries since the bulk of their manufacture is in other lines. Nor can these be listed in the space available here because of their numbers.

During the early days of aviation development, Connecticut was in many ways a leader. It was the first state to pass laws forming the development of aviation (passed by Legislature of 1911 during Governor Baldwin's regime). Many others have been passed since which are favorable to aviation development including one notable bill passed in 1929 permitting the state to condemn land for airports should the need arise. Prominent Connecticut citizens interested themselves in the organization of the Colonial Air Transport Co. which first inaugurated an air mail and passenger service between Boston and New York in 1926. Likewise, under the regime of Governor Trumbull in 1927, Connecticut organized the first state department of aeronautics with a commissioner and staff. Today under its second Commissioner, Charles L. Morris, aviation regulation, inspection and training are on a sounder, safer basis than in most states.

In airports, Connecticut has 19 as shown by the airport map published in the January issue of the *Journal of Air Law*. Of this group three are fully

Continued on page 23

WHY NOT FLY!

A frank discussion of the present commercial aspects of the aviation industry. Why it is both safe and economical for business men to use air transport

By CHARLES L. MORRIS,

State Commissioner of Aeronautics

IN talking with business executives throughout Connecticut, it has become increasingly apparent that industry as a whole has not yet realized the potential value of aviation as it applies to other forms of commerce. Aviation is still generally regarded in the light of its status six or eight years ago, when promoters were attempting to urge universal use of a form of transportation that was not yet ready to meet such patronage. In the last few years, however, promoters have been silenced by general business conditions, and aviation has settled into the traces for a long, steady, healthy pull, unhampered by the jerking and hauling of self-seekers.

We feel that now we can lay before you leaders of industry, the true picture of aviation as it stands today, and we believe we have a story that will open your eyes to new possibilities.

Let us first scan the background of sound regulations which have furnished a firm foothold where, previously, aviation found only slippery gravel and shale. Do you, for example, know that no one is allowed to fly an airplane until he has undergone a complete medical examination? Do you know that before a pilot receives his transport license he has undergone between three and five separate and distinct flight-tests by a qualified inspector and at least as many re-examinations of his physical condition? Do you know that every airplane in Connecticut is completely re-inspected once every month? And have you fully realized that, for certain trips, it is actually cheaper to fly than to go by train? By "cheaper," we are referring to cash-over-the-counter, without any speculation as to the value of time saved.

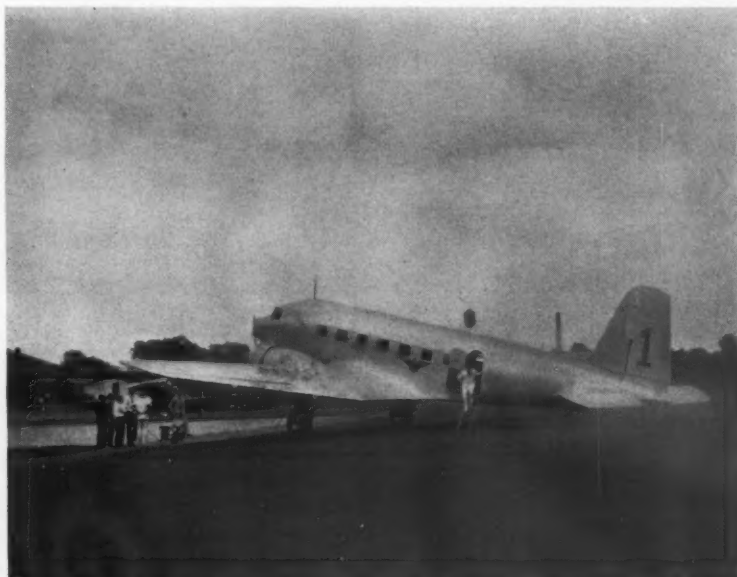
If you already know these things, you doubtless have other reasons for not wanting to fly; and the writer would sincerely appreciate hearing those reasons. There are answers to

everything, and the job for aviation is to furnish the answers.

If you want to meet an appointment in the shortest possible time—if you want to close a contract before some competitor gets it—your first thought is "An airplane will get me there quicker than anything else." But then you think, "How do I go about it? Who do I call? Will I have to get bundled up in cumbersome flying suits,

an order to your door, for which you pay them the ticket price. The ticket is then held at the air-line terminal until you pick it up at your convenience—five minutes before plane-time, if desirable.

Try asking for rates, sometime. You will undoubtedly be surprised, for instance, when you find that you can travel by air from Hartford to Washington for \$35.19 round trip. You can leave East Hartford at 8:26 in the



AN EXTERIOR view of one of the many types of transport planes.

and probably be highly uncomfortable on the trip?"

The answer to the first question is simple: Western Union or Postal Telegraph will make reservations for you on any airline in the country. All you need to do is call your local telegraph office. They can furnish you schedules and rates, and will even deliver

morning and arrive in Washington at 11:00 o'clock. With six hours in Washington, you can leave there on the five o'clock plane and be at the East Hartford airport at 7:19, getting home in time for a late supper.

Compare this with present railroad rates. The round-trip tickets cost \$24.83. A lower berth is \$5.25 each



EVERY airplane is built to stand the strain of at least seven times its normal load. Above is shown a wing assembly in a factory test loaded with sand bags to a total weight of eight times the load that it will carry in flight.

way. The total, therefore, is \$35.33 for two nights on the train, or, in actual cash, 14 cents more than travelling by air and being away from Hartford only 11 hours. Besides which you pay considerably more for two or three extra meals on the train than you would pay at home.

Contrary to general belief, in zero weather you are as comfortable in an airliner as in a Pullman. Every airliner—and for that matter, every modern cabin airplane—is equipped with heaters, so you can fly without worrying about heavy clothes and flying togs. On the longer trips you will be served lunch, coffee and cigarettes by a stewardess who is specially chosen for this task and whose outstanding qualification is that she is a registered nurse.

In the summer you will find flying the most comfortable means of travel. The cabin is air conditioned under the control of the pilot and the fresh, clean air will be far more pleasant and refreshing than the hot ground breezes.

So scheduled air transport is worth investigating. If, however, your trip carries you away from the scheduled routes, you can charter an aerial taxi. The operators at your local airport

are there to serve you. They will furnish you a plane for any trip you care to take. If you are going alone, the cost may be fairly high, because the plane costs approximately as much for one person as for three. But the chances are that you will find, even travelling alone, that the saving in

time may compensate for the additional cost.

After you have called the airport and have been quoted prices, you will wonder whether your pilot will be competent. The answer is, "Yes, if he holds a Transport license." A transport pilot must have over 200 flying hours of experience. In terms of surface measurement this means upwards of 20,000 miles. During this entire period, he has been under constant observation from two sources.

The Connecticut Department of Aeronautics has a Bureau of Personnel Inspection composed of six medical examiners. Three of them are in Hartford, and one each in New London, New Haven and Bridgeport. These flight surgeons, as they are called, are qualified practicing physicians, who have been especially trained to apply their medical knowledge to specific aviation problems. They have had to complete an extensive correspondence course under the Chief Flight Surgeon, and have met, once or twice a month, for a class period on the course. They have subsequently been sent for a three-months' practical course with the U. S. Army School of Aviation Medicine in Texas and they all hold the Army Flight Surgeon's rating.

These men re-examine every transport pilot every six months, and all other grades once a year. Besides this, they observe him constantly from the sidelines, and if they have any reason to believe that he should undergo a



AN INTERIOR of the same plane. Note the fireside comfort of the seats.

re-examination before the regular examination comes due, the pilot must again be checked.

Thus you may rest assured that any Connecticut pilot is physically qualified. But, of course, that does not mean that he knows how to fly. So we have a flight inspector for that. Unless the pilot started his flying more than ten years ago when the present control of aviation was put into effect, he must have held a student license at some time in his career. Under the present regulations, a Connecticut student pilot's license is not issued until the student has passed a rigid flight examination. He must have had at least eight or ten hours of flying, and he must be able to control an airplane in all the fundamental maneuvers. After his student license is issued, he progresses through the following routine, with a written examination and flight-test at each step more stringent than the preceding one:—Amateur license at 25 hours, Private license at 50 hours, Limited Commercial at 100 hours, and Transport at 200 hours. Occasionally, a pilot will not bother with the Amateur or Limited Commercial grades, but you may be sure that he has been flight-checked at least three times, and probably five times, before he becomes a Transport pilot.

After you have satisfied yourself that the pilot is qualified and safe, your thoughts naturally turn to the airplane. You feel that an airplane is a collection of wood, wires, metal and cloth, so fastened that it generally stays together. And you are right, except for the "generally"; because the only time the present-day airplane falls apart in the air is occasionally during violent test maneuvers, when the test pilot is definitely trying to see if it will hold together. You may rest assured that no such maneuvers will be attempted by any commercial operator.

Everyone wants airplanes to be structurally sound, and there are three coordinated groups to bring this about. The manufacturers of the airplanes build them so that even the smallest part will withstand at least seven times the normal load which it will be called upon to bear. Generally this "factor of safety" is in excess of ten times the normal load, but it is never less than seven times. Thus, the airplane, when it comes from the factory, is not going to fall apart.

The next problem is to keep it in its original safe condition, and the Fed-

eral Government and State organizations have accepted the responsibility for this. The Federal Government (Bureau of Air Commerce) re-inspects every airplane when it comes due for Federal re-licensing each year. That is the most that curtailed government appropriations will permit at the present time. Connecticut, however, is able to go further, and requires a re-inspection every month. This puts no hardship on the owner of the airplane, because the inspection is made at his home port when the ship is not in use,

censed airplane is structurally safe. Perhaps, however, you feel as one newcomer did:—that the airplane is as likely as not to turn over in mid-air! Frankly, it is a very difficult task even to force an airplane to fly wrong-side up, because every airplane has what we call "inherent stability." In other words, the pilot can take his hands off the controls of the ship, and although it may tilt ten degrees or so, it will automatically correct for variations and follow substantially a level path.



AN AIR MARKING sign on a farm building—painted by the Durham Boy Scouts under the supervision of the state department. It is a typical example of what can be done on a comparatively narrow sloping roof.

so that it is not necessary for him to be present, or to take his ship to an inspection base. If there is some minor correction which should be made, a note is left for the owner, and it must be fixed before the next inspection. If—and this seldom happens—a serious condition has arisen, a "Not-to-be-flown" tag is sealed in the cockpit, and can only be removed upon authorization of the inspector, after the repairs have been made. Qualified mechanics at each airport check over every airplane before each day of flying, in order to put a final preventive on any troubles that might be building up.

In view of the foregoing, it should be apparent that any Connecticut-li-

Perhaps, also, you question the results of engine trouble. Rest assured that engine trouble is not nearly as frequent nor as serious as it used to be several years ago. The modern airplane engines are built in such a way that, with normal care, failures are practically impossible. But let us suppose for the sake of the argument, that an engine does fail. Do you realize that the airplane does not fall directly to the ground? Every airplane has a gliding angle of at least 7 to 1—or, to put it more clearly, an airplane without the use of the motor can glide at least 7 feet forward for every foot that it drops. Thus, if your pilot is flying at

Continued on page 20

SERVICES AT YOUR DOOR

An alphabetical list of accessible services recommended to Connecticut Industry readers

**HADFIELD, ROTHWELL,
SOULE & COATES**
Certified Public Accountants
Hartford Stamford

HENRY KNUST
Certified Public Accountant
Conn. and N. Y.
15 Lewis Street Hartford

Scovell, Wellington & Co.
ACCOUNTANTS AND AUDITORS
First National Bank Bldg.
New Haven
Offices in Principal Cities

*Rates for this space
exceptionally low*

COAL
T. A. D. JONES & CO., INC.
*24 hour service to Connecticut
Industries*
New Haven — Bridgeport

ENGINEERS—MANAGEMENT
Scovell, Wellington & Co.
First National Bank Bldg.
New Haven
Offices in Principal Cities

DIESEL ENGINES
**WOLVERINE MOTOR
WORKS, INC.**
6 Union Ave. Bridgeport

ENGRAVERS
DOWD, WYLLIE & OLSON
*Advertising Art &
Photo Engraving*
106 Ann St. Hartford

FENCING
THE JOHN P. SMITH CO.
*Distributors for Page fence.
Manufacturers of Wire Cloth,*
497 State St. New Haven

*Ask about rates for one or
more of these spaces.*

**THE HENRY SOUTHER
ENGINEERING CO.**
*Engineering & Chemical
Service*
*Research Facilities for
Industry*
Hartford, Conn.

L. HERES DE WYK & SON
Engineers
Ansonia Connecticut
Zeh & Hahnemann Co. Presses

... Query

Readers desiring to purchase merchandise or services not listed here will be given the names of reliable firms upon inquiry to this department.

... Listing

Copy for listing in this department must be received by the 15th of the month for publication in the succeeding month's issue. We reserve the right to refuse any listing.

FREIGHT FORWARDERS
PITT & SCOTT CORP.
Foreign Freight Forwarders
27 Beaver St. New York City

WALKER SERVICES INC.
Foreign Freight Forwarders
Pier 14 North River New York

INSURANCE
**AMERICAN MUTUAL
LIABILITY INS. CO.**
Workmen's Compensation Ins.
Boston - Bridgeport - Hartford

**PLATERS SUPPLIES—
CHEMICALS**
**APOTHECARIES HALL
COMPANY**
Established 1849
WATERBURY, CONN.

*Rates for this space
exceptionally low*

PRINTERS
**THE CASE, LOCKWOOD &
BRAINARD CO.**
Printers and Binders
Trumbull St., Hartford

RECORDING INSTRUMENTS
THE BRISTOL COMPANY
*Recording and Controlling
Instruments*
Waterbury — Connecticut

TRANSPORTATION
**AMERICAN-HAWAIIAN
STEAMSHIP CO.**
Coast-to-Coast Freight Service
New York — Boston

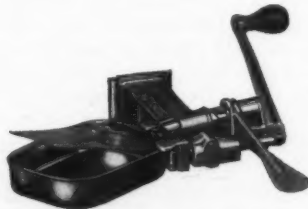
**DOLLAR STEAMSHIP LINES,
INC., LTD.**
*Inter-coastal—Far-East and
Mediterranean freight steamer
Service*
New York Boston

*Ask about rates for one or
more of these spaces.*

NEWS FORUM

Rossie Velvet to Reopen Willimantic Plant. The Rossie Velvet Company of Mystic, is planning to resume operations at its branch mill in Willimantic in the near future, with employment scheduled to be given to about 60 operators at the start. Rossie's Willimantic plant has been closed for the past three years.

Atlas-Ansonia Introduces New Can Opener. The Atlas-Ansonia Company of New Haven, manufacturers of sewing and advertising thimbles, pencil sharpeners, the Richard Oiler and many other metal novelties has just introduced the "Smoothcut" can opener which opens round, oval or square cans, including sardine and asparagus cans, leaving a smooth clean rim without ragged sharp edges



"SMOOTH CUT" Can Opener,
new product of Atlas-Ansonia
Co., New Haven.

or burrs. It is also designed to eliminate any possibility of depositing chips or particles of metal in the food.

Ruggedly constructed of die casting and screw machine parts and built to last a lifetime, "Smoothcut" is guaranteed for five years. It is understood that this new item has been enthusiastically received by wholesale, retail and consuming trade which indicates a good volume of business for 1936.

Manufacturers and Products Listed in New Directory. The first effort in several years to list all New England manufacturers in one directory has just been completed in the form of a 1936 edition "Directory of New England Manufacturers" published by George D. Hall Inc., with the editorial cooperation of the New England Council. The new directory, just off the press early in January, lists nearly 16,000 New England manufacturers alphabetically, geographically, by products and by

brand name and registered trade mark names. Geographical listing enables one to locate sources of supplies nearest home, and also presents a complete picture of the industrial structure of any given New England community. Alphabetical listings include the names of important officials of each company of interest to buyers and sellers as well as giving capitalization and employment.

In the advertising section are included special messages from manufacturers supplementing the information contained in the various listings. In short, this Directory which has received the endorsement of many civic and commercial organizations, was designed especially to assist executives, sales managers, advertising men and purchasing agents with their many problems of distribution in the New England territory.

The Directory of New England Manufacturers, scheduled to be issued annually in January of each year, is priced at \$10.00 per copy. A three years' subscription is priced at \$25.00; five years, \$40.00. Distributor of the Directory is Paul B. Preston Company, 34 Parkman Street, Brookline, Massachusetts.

Errata. The correct address and telephone number of L. Heres De Wyk and Son whose ad appeared on page 19 of the January issue and page 13 of the December issue of CONNECTICUT INDUSTRY is 133 South Cliff Street, Ansonia, Connecticut, telephone Derby 784-W.

Death of F. C. Spencer. Frederick C. Spencer, president and treasurer of the I. S. Spencer's Sons, Inc. (established in Guilford, 76 years ago), and president of the New Haven Shore Line Railway, died at St. Raphael's Hospital, Saturday night, December 21, 1935, after an operation.

After graduating from the public high schools and the Yale Business College, of New Haven (now Stone College), Mr. Spencer entered the foundry office of the company established by his grandfather, Isaac Stow Spencer and his father Christopher Spencer, in 1859. Advancing through various shop and office stages, Mr. Spencer later became president and treasurer of the company, which position he held at the time of his death. This company, originally an iron foundry, added to its line in recent years brass and copper specialties.

Mr. Spencer was trustee of the Guilford Savings Bank, chairman of the board of finance of the Town of Guilford and candidate for comptroller on the Independent Republican Ticket in 1932. Mr. Spencer was also an outstanding benefactor of his town, having donated the land

HADFIELD, ROTHWELL, SOULE & COATES

Certified Public Accountants

HARTFORD-CONNECTICUT
TRUST BUILDING
HARTFORD, CONNECTICUT

THE FIRST-STAMFORD NATIONAL
BANK & TRUST CO. BUILDING
STAMFORD, CONNECTICUT

for and assisted in the development of the Guilford Public Library. He also gave sidewalks to the Guilford green as a memorial to his own father and mother and his wife's parents and aided in the passage of bills through the legislature to enable the construction of sidewalks in Guilford as well as to establish the board of finance.

He was a member of Christ Church, a member of the Manufacturers' Association of Connecticut and of the Union League of New Haven.

He was survived by his widow, Mrs. Rilla Bishop Spencer. Funeral services were held at his residence, Tuesday afternoon, December 24.

Curtis 1,000 Conferences Hear President. Spanning more than 700 miles between Hartford and Cleveland, Ohio, and 1100 miles between Hartford and Chicago, Illinois, with as much ease as in talking with his secretary, Mr. Henry Curtis, president of Curtis 1,000 Inc., a na-



tional envelope concern, spoke to both his Eastern and Mid-Western sales force for more than a half hour from his desk at the Company's offices, Capitol Avenue and Broad Street, Hartford, during the recent annual mid-winter Sales Conferences of the firm's representatives.

Through a special arrangement with the Telephone Company, which had installed loud speakers in the company's offices at both Cleveland and Chicago, Mr. Curtis was able to be literally in 3 places at once and talk to his salesmen gathered at these widely separated points as though they were all assembled in one group. Speaking to more than 60 salesmen from more than a dozen states, Mr. Curtis said in part: "The Curtis organization has sold more goods during the past year than even in 1929. 1935 was the best year in all the 53 years of the company's history. We anticipate a 20% increase in the total volume of our business for 1936."

Wagner Bill Effect on Representation Plans. According to a recent study made by the National Industrial Conference Board employee representation plans by which groups of company employees bargain collectively with company management have not been discontinued to any

appreciable extent as a result of the Wagner Labor Relations Act. The Board's survey covered 2,452 business establishments in manufacturing, mining, transportation and communication, wholesale and retail trade, finance and public utilities, to a total representing employment of over 4½ million, or 15.5% of all persons gainfully employed.

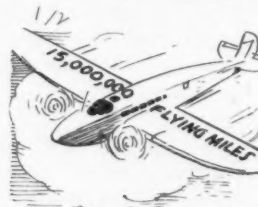
In 30% of the companies, or in 751 concerns, employee representation plans are in operation. These concerns employ nearly 60% of all the workers covered. Organized labor unions have agreements affecting a portion or all of the employees in 287 of the companies covered in the Board's investigation. It also showed that large companies employ collective bargaining in some form more frequently than smaller establishments. Among the companies in the survey employing 10,000 workers or more, 68% have employee representation; 38% trade union agreements. Of those companies employing less than 100 workers, 12% reported employee representation plans and 5% trade union agreements.

Iron and steel, automobile and rubber among manufacturing industries had the largest proportion of employee representation plans, while petroleum refining products and public utilities most frequently reported employee representation among those in the non-manufacturing group.

Labor union agreements were more numerous in the clothing, printing and publishing, and stone, clay and glass products industries within the manufacturing groups, and in the non-manufacturing group transportation and communication and mining led those who reported having union agreements with employees.

The Board's investigation also indicated that both employee representation plans and trade union agreements were most numerous in the Middle Atlantic and in the East North and Central states.

United Air Lines Leads World in Volume of Plane Business. During 1935, the United Air Lines by flying 15,000,000 miles and transporting 180,000 revenue pas-



sengers, 3300 tons of mail and 900 tons of express, strengthened its position of flying more passenger, mail, express and passenger miles during the year than any line in the world. United's mid-continent airway in 1935 con-



Scovell, Wellington & Company

ACCOUNTANTS AND AUDITORS
MANAGEMENT ENGINEERS

OTHER OFFICES

New York	Springfield	Boston
Philadelphia	Syracuse	Chicago
Buffalo	Cleveland	San Francisco
Kansas City		

NEW HAVEN OFFICE
First National Bank Bldg.
Telephone 6-1412

tinued to be the busiest long distance route in the world since passengers over it increased approximately 22 percent and mail nearly doubled, while air express increased 56 percent.

In anticipation of an expected increase during 1936, United Air Lines will shortly announce the purchase of additional equipment to supplement its fleet of 50 twin-engined transports, all of which, with new power plants, now have a top speed of 202 miles per hour and a cruise speed of 189 miles per hour. United is now flying approximately 1,250,000 miles a month, or substantially more than by any other transport company in the world, and has completed a total mileage equal to a flight from the earth to the sun, or approximately 93,000,000 miles.

Rattan Adds New Sizes to Connector Line. The Rattan Manufacturing Company, New Haven, manufacturers of conduit fittings, outlet boxes and other items in the electrical field, has just added two smaller sizes to its line of "MARR" Solderless Connectors, as well as one with a porcelain cap instead of the usual bakelite cap. The new sizes take up less room when installed and accommodate some assemblies of small wires. The smaller one (designed



"MARR" connectors, new additions to its line by Rattan Mfg. Co., New Haven.

for No. 00) is for use with 2 No. 16 wires or 3 No. 18 wires. The next size (No. 0) holds 2 No. 14 and 2 No. 18 wires, or 4 No. 16, 5 No. 18 twisted or 7 No. 18 untwisted. Model No. 7 with porcelain cover is for places where the wires and the connective medium are subjected to extremely high temperatures.

The Rattan Manufacturing Company's line of solderless connectors, known as the "MARR" have been used by the electrical industry for many years under many varying conditions such as lighting fixture work, motor leads, and many types of electrically operated devices requiring a method of safely, quickly and economically joining wires together without the annoying feature incidental to the former method of soldering and taping. The connectors are designed to eliminate chances of loose connections, and because no paste, acid, solder, rubber tape or friction tape are used there are no blackened walls or spoiled furnishings. The use of a troublesome torch is also eliminated.

"MARR" connectors are packed 100 to a box with a practical screw driver, the proper size to fit the particular connectors.

Scovill Absorbs Wisconsin Tax. The Scovill Manufacturing Company of Waterbury is reported to have absorbed a special Wisconsin tax levy on dividends instead of passing it on to the stockholders. The Wisconsin law, recently enacted, provides for a tax of 2½ percent of the proportion of any dividend paid which was earned in that state.

The Scovill Mfg. Co. has a plant in Racine, Wisconsin, where the Hamilton-Beach vacuum cleaners and other electrical household appliances are made.

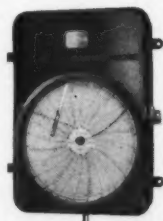
Whitney Manufacturing Company Changes Name. Effective Wednesday, January 1, the Whitney Manufacturing Company of Hartford, manufacturers of roller, silent, block and conveyor chains and sprockets, changed its corporate name to the Whitney Chain and Manufacturing Company. Given as the reason for the change was the fact that the company has long been referred to as the "Whitney Chain" identifying it with its principal product instead of "Whitney Manufacturing Company."

It was founded nearly 40 years ago by the late Clarence E. Whitney. The firm is now a leader in the power transmission and conveyor chain field. Neither the company's policy nor products will be affected by the change.

North and Judd Takes Travelers Policy. The North and Judd Manufacturing Company announced Thursday, January 2, that arrangements have been made with the Travelers Insurance Company to put into effect immediately a cooperative plan of group life insurance which will enable those eligible to apply for protection aggregating about \$1,000,000. In announcing the plan the company officials said: "The action of North and Judd Mfg. Company is in keeping with the progressive steps of many organizations as respects opportunities extended to employees to obtain group life insurance."

Stanley Declares Extra Dividend. Directors of the Stanley Works, New Britain, recently voted an extra dividend, the first in several years, in addition to regular dividends for the past quarter of 25 cents a share on common stock and 37½ cents a share on preferred. The extra dividend of 25 cents went to common stockholders on December 30. The preferred dividend is scheduled for payment on February 1.

PIONEERS IN PROCESS CONTROL SINCE 1889



Charts absolute pressure
automatically corrected for climatic changes

By means of an ingenious differential device, Bristol's Absolute Pressure Gauge, Model 40M, charts a 24 hour record of the absolute pressure, for ranges as low as 0 to 100 mm. of mercury, automatically corrected for

barometric changes and temperature variations.

TRADE MARK
BRISTOL'S

REG. U.S. PAT. OFF.

THE BRISTOL COMPANY, WATERBURY, CONNECTICUT

Death of Edward T. Brennan. Edward T. Brennan, secretary and treasurer of the New Haven Malleable Iron Company, died at his home, 177 Everit Street, New Haven, on the night of December 29 after a long illness. He was born in Naugatuck, and has been a resident of New Haven for a number of years.

The funeral was held from his late home at 9:30 A. M., Thursday, January 2, with a solemn requiem mass at St. Joseph's R. C. Church at 10:00 A. M. The burial was made in St. Lawrence's Cemetery.

Bristol Workers Get Yuletide Gift. Christmas cheer amounting to thousands of dollars in bonuses was granted to employees of the Bristol manufacturing organizations as follows:



The New Departure employees received \$25.00 checks; the Wallace Barnes Company's employees received a day's pay each; and the Cooper Oven Thermometer Company's employees, Pequabuck, a five-pound box of chocolates.

DeWitt Page Gives Sum For Park. DeWitt Page, president of the New Departure Division of General Motors and a member of the Board of Park Commissioners, Bristol, recently made an outright gift of \$50,000 to the city for the upkeep of Page Park. Two years ago he gave the city the land which has since been developed as Page Park.

Robert Skinner Joins Whiton Machine Company. Robert B. Skinner, secretary and sales manager of the Skinner Chuck Company of New Britain for a number of years, has recently resigned to become associated with Lucius E. Whiton, president of the D. E. Whiton Machine Company of New London, as vice president and general manager of the latter concern.

Engaged in the chuck business in all its phases since leaving school, Mr. Skinner like Mr. Whiton, is a descendant of pioneers in the chuck business, which originated shortly after 1840 in West Stafford, Connecticut (see CONNECTICUT INDUSTRY for February, 1935—article on "Chucks").

David E. Whiton, founder of the D. E. Whiton Machine Company, was born in Stafford in 1825, and began business there in 1856. Out of his early efforts came the Whiton Machine Company which was incorporated in 1884 with his son, Lucius E. Whiton as an officer. It was removed to New London in 1884. Mr. Whiton has been a prolific inventor of chucks and patentee. His designs have influenced the construction of hand operated chucks to a marked degree. The Horton Company, where Mr. Skinner's grandfather was employed before he founded the Skinner Chuck Company in New Britain, was estab-

lished in Windsor Locks by Eli Horton who moved there from Stafford on account of the water power available.

Not only is Mr. Skinner well known in the chuck business but also he has found time in his busy life to engage in many activities outside of his regular line of business. He was instrumental in organizing Everyman's Bible Class, a non-denominational man's class rated as one of the largest in the Eastern United States. He has also been engaged in activities with the Y. M. C. A., Boy Scouts and other civic interests.

The Whiton Machine Company manufactures not only chucks but centering machines, gear cutters, castings and steam turbines.

Death of J. M. Tatem. Former State Senator and Judge of Probate, John M. Tatem, 75, of Eastford, died on December 15 after a five months' illness. He was a native of Woodstock but had resided in Eastford since establishing the J. M. Tatem Handle Company, which he headed.

Mr. Tatem served as representative of the Town of Eastford in the 1911 General Assembly and returned as state senator from the 28th District in 1915. He served one term in each office.

Mr. Tatem leaves three sons, Charles D., and Harry Logan Tatem of Eastford and J. Carlton Tatem of Reedsville, N. C.

Electro-Platers to Hold Banquet. The Bridgeport Branch of the American Electro-Platers' Society will hold its annual educational session and banquet at the Stratfield Hotel, Bridgeport, Saturday, March 14, with the objective of advancing the art and science of electro-plating through presenting papers on various late developments in the art.

The session, beginning at 2 P. M. is open to both members and non-members, there being no charge for admission to the educational session. Papers on the latest developments will be presented at this session by accepted authorities on the subjects. Although the program is not yet completed two prominent authorities have already been



engaged—Dr. R. R. Rogers, Columbia University, Department of Chemical Engineering, who will present a paper on chrome finishing, and W. M. Phillips, General Motors Company, who will show a Pictorial Projectoscope, showing plating solution at work on the screen.

Since finish plays such an important part in the sales of modern products, the Bridgeport Branch of the American Electro-Platers' Society strongly urges manufacturers to send their key men in their plating divisions to the educational session. The banquet tickets are obtainable at \$3.00 through Eugene Phillips, 67 Roanoke Avenue, Fairfield, Connecticut, who is in charge of publicity for the Society.

DEPARTMENTS

Accounting Hints for Management

Contributed by Hartford Chapter N. A. C. A.

Accounting Treatment of Special Production Tools.

The question frequently arises as to the correct accounting procedure to be followed out in connection with expenditures for tool charges such as dies, punches, arbors, forming tools and fixtures, paid for by the vendee, which the vendor collects as a separate item of cost of producing an article which requires the making of a special tool, die or set of tools before it can be manufactured on a quantity basis.

It is customary for the vendor to retain possession of such tools and to require that they be not removed from his custody; as a rule the price charged for such tools barely covers the cost of producing them and often is less than cost. It seldom compensates the vendor for the inventive skill and genius of the craftsmen who create such tools, which in many instances make possible the production of the article at a cost very much less than it otherwise could have been produced for. Often these tools embody novel and patentable ideas which however are not covered by patents chiefly because of lack of knowledge of potential market for the product.

The life of special tools varies a great deal. In some cases obsolescence is the determining factor and in other cases wear and tear and accidental breakage. Obsolescence is a much more variable factor than wear and tear. Changes in design or style often quickly render valueless a considerable investment in special tools and equipment. Hurried and incomplete or erroneous engineering of the finished product for which the tools are designed, perhaps to produce one or more parts, frequently makes necessary abandonment of original tools or costly changes part of which the vendor is called upon to absorb. All of these things and other contingencies have a direct bearing upon the treatment of the cost in the accounting records.

Pursuing these underlying facts somewhat further we find that the uncertainty as to the ultimate quantity to be produced makes it difficult to determine the quality of tool steel which may most economically be used in the manufacture of the tools. An original order for ten thousand parts may expand into an ultimate ten million or the demand may fizzle out at 25, 50, or 100 thousand, or there may be no repeat order at all. A set of tools therefore hurriedly made to fulfill customer's demand for an early delivery may require replacement at a comparatively early stage in the production of the ultimate quantity. It is embarrassing to ask the vendee to pay for an additional set of tools so the replacement cost is usually absorbed by the vendor.

The vendee's accounting procedure with respect to this problem is by no means as complicated as the vendor's. He pays for the tools and his cost is finished unless he changes his design. The amount may be treated as a deferred charge to operating and absorbed over a definite quantity of units of product covering the first year's or season's expected sales at so much per unit, which is the ideal way to handle it; or it may be capitalized among the short lived depreciable assets and amortized at a high rate, say 25%

to 50% a year, dependent upon circumstances.

It would seem that the cost is really a deferred operating expense to be absorbed as quickly as is practical from a conservative viewpoint. It does not appear to be a proper item of inventory since it may not ordinarily be subject to possession physically. It is in no sense an item of permanent capital. If placed among the capital assets a suggested title for a separate caption is "Short Lived Special Tools With Vendors," to be supplemented by loose leaf or card records descriptive of the contents of the account. Individual records should in each case show a conservative estimated useful life of the item so that a composite rate for amortization of the total account may be applied.

The conservative manner of accounting for cost on vendor's books is to absorb the entire excess of cost over selling price in the cost of original order for the parts, unless a repeat order is received before final billing of the original order in which case it may be spread ratably over both orders. The vendor has no real basis for deferring this incurred expense unless there is a firm contract covering a future supply, in which case it may be, if desired, charged to a suspense or Deferred Operating Expense account and absorbed over the entire contract concurrently with the shipment of the goods.

New Britain Executive to Address Cost Accountants.

C. F. Bennett, President of the Stanley Works, will speak on "Management Reports, Their Use and Interpretation," at the regular meeting of the Hartford Chapter, N.A.C.A., Tuesday, February 18, 1936.

Transportation

Loading and Unloading Charges at Buffalo. The Interstate Commerce Commission has recently rendered a decision in which it finds that the proposed charge of 2½¢ per hundred pounds for loading and unloading freight on and from cars at Buffalo, New York, has not been justified. By schedules filed to become effective July 1, 1935, the Eastern rail carriers propose to apply these charges in connection with through billed carload freight interchanged with lake carriers at Buffalo, and transported from point of origin to final destination at the combination of rates to and from that point. Upon protest, the schedules were suspended until February 1, 1936, and the matter set down for hearing.

By its decision, the Commission has ordered the suspended schedules cancelled and the proceeding discontinued.

Pick-Up and Delivery Service in Western Trunk Line Territory.

The rail carriers in Western Trunk Line Territory have filed with the Interstate Commerce Commission tariffs which provide for a complete pick-up and delivery service throughout Western Trunk Line Territory. The new service became effective January 20, 1936.

Under the tariffs, shippers and receivers have the option of accepting pick-up or delivery at loading and shipping platforms at no charge in addition to the line haul rate, or of receiving an allowance of 5¢ per hundred pounds where merchandise is delivered by the shipper to the freight

house, and 5¢ per hundred pounds where merchandise is picked up at the freight house by the receiver. This arrangement applies within Western Trunk Line Territory. At points outside of Western Trunk Line Territory, a charge of 5¢ per hundred pounds will be added for either pick-up or delivery of goods consigned to or delivered from Western Trunk Line Territory.

Coincident with this arrangement, the pick-up and delivery service which has been in effect for some time throughout Southwestern Territory is to be somewhat broadened. The Southwestern lines will reduce from 10¢ to 5¢ per hundred pounds the charge for pick-up and delivery in the Southwest of freight originating or destined beyond Southwestern Territory. An arrangement will also be made for freight pick-up and delivery service on merchandise freight moving between points within Southwestern Territory and between points in that Territory and Western Trunk Line Territory.

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Connecticut-North Carolina Freight Rate Change Effective May 1. In a report recently made public, the Interstate Commerce Commission authorized a complete readjustment of the all-rail class rates between stations in southern Virginia and North Carolina, and stations in Official Classification territory (including New England). Determination of just and reasonable rates between the points previously mentioned has been a continuing problem before the Interstate Commerce Commission since 1928, when the Commission failed to include northeastern North Carolina and southern Virginia in its report in the Southern Class Rate investigation.

In the future, rates are to be based on distance, the Commission having prescribed one mileage scale of first class rates for application for the portion of the haul south of certain specified gateways in Virginia and another scale of first class rates which reflects not only the distance between southern gateways and stations in the North, but also the northern factor which varies in accordance with the distance traversed in Southern territory. The two factors are to be added together to determine through rates which are in turn governed by the Southern Classification. Classes lower than first are to be related to the first class rates by use of the standard Southern class percentages.

A more complete report was made on this schedule in Transportation Bulletin No. 448 dated January 7, 1936. Further details will be furnished to interested members on request.

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ICC Issues Report in Textile Rate Cases. In its recent report on the cotton textile rate cases, the Interstate Commerce Commission has prescribed maximum reasonable rates for the transportation of cotton and knitting factory products between points in Official, Southern, Western Trunk Line, and Southwestern territories and interterritorially. Considered from certain angles, the report more nearly equalizes freight rates from points of origin in New England and the South to destinations in Central Territory, while in other details the Commission has permitted the continuance of more favorable rates to the South than to the North. On the whole the decision is particularly objectionable to the Connecticut and New England shippers since the Commission failed to make definite findings of undue prejudice and preference. An apparent essential is to prevent the establishment of rates from Southern mills

lower than the prescribed maxima without corresponding reductions from the points of manufacture in the North. Failure to make such finding will permit the Southern carriers to carry out their announced intention to maintain, wherever possible, a relative basis more favorable to the Southern mills than that which would result from the application of the maximum rates approved by the Commission.

The foregoing proceeding originated in 1931 as a result of an attempt on the part of the railroads to cancel practically all existing commodity rates on cotton factory products, thus placing this traffic on a classification basis. The Association participated in extensive hearings held at the time, and Association members were later informed of the recommendations contained in the examiner's report of January, 1934.

A more complete statement of this case was presented in a general letter to members manufacturing or using cotton and knitting factory products, dated January 3, 1936, signed by the Association's traffic manager, N. W. Ford.

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ICC Gives Extension to Motor Carriers. In response to numerous requests from motor carriers and their associations for additional time to compile their tariffs and schedules, the ICC, Division 5, handed an order on January 2 extending the effective date of Section 216, 217, 218, 219 and 223 of the Motor Carrier Act, 1935. These sections deal with the filing and observance of tariffs and schedules showing rates, fares and charges, for transportation by motor carriers subject to the Act, and related matters, as well as the issuance of receipts or bills of lading and collection of charges. The general effect of this further postponement is to require that tariffs and schedules be filed with the Commission on or before March 2, 1936, and to require that the rates, fares and charges for transportation as shown by the tariffs and schedules so filed be effective on April 1, 1936.

Rules and regulations to be issued by the Commission to govern the construction, filing and posting of tariffs and schedules will not prescribe the rates, fares and charges of motor carriers but only the form and construction of the tariffs and schedules. The amount or measure of the rates, fares or charges shown by these initial tariffs and schedules must be determined under the law by the motor carriers themselves and not by the Commission.

★ ★ ★

New Haven Road Trustees to Pay Interest. Trustees of the "New Haven" railroad company filed petitions with Judge Carroll C. Hincks in the United States District Court at New Haven on Friday, January 3, seeking authorization to pay interest on long and short term obligations to the amount of about \$89,000,000 during their period of administration. The list included for payment of interest follows:

Housatonic RR 5's 1937, \$2,819,000; Naugatuck RR 4's 1954, \$2,500,000; New York, New Haven, Harlem River Portchester 4's 1954, \$15,000,000; Danbury & Norwalk 4's 1935, \$350,000; Dutchess County RR 4½'s, \$282,000; New England RR 4's 1945, \$10,000,000; New England RR 5's 1945, \$7,500,000; Central New England RR 4's 1961, \$12,054,000; Providence Terminal 4's 1956, \$3,922,000; New York, Providence & Boston 4's 1942, \$1,000,000; New York & New England RR Boston Terminal 4's, \$1,500,000; total, \$56,927,000.

The report of the Court's action after hearing held January 13 is not known at this writing.

President's and Trustees' Salaries Set. The Interstate Commerce Commission approved on December 20 a maximum annual salary of \$30,000 for H. S. Palmer, president and trustee of the New York, New Haven and Hartford railroad. The other trustees, W. M. Daniels and James Lee Loomis were granted \$12,500 annual compensation, while a salary of \$15,000 was fixed for W. W. Meyer, counsel for the trustees. Mr. Palmer's salary represented a reduction from \$36,000.

ICC Investigation of New Haven - Pennsylvania Mergers. A suggestion that the present Interstate Commerce Commission investigation of the New York, New Haven & Hartford railroad embrace considerations of whether the road should be consolidated with the Pennsylvania was placed on file December 24, 1935. The investigation was ordered by the commission on its own motion after the New Haven went into bankruptcy. When investigators have finished gathering preliminary data on the road's operation, hearings will be held.

In a letter to the commission, William G. Cunningham, of Jamaica Plain, Mass., said that he approved of the investigation and asked that one of the proposed hearings be held in Boston.

Foreign Trade

Surtax on Rumanian Imports. All imports into Rumania became subject to a surtax of 12 percent ad valorem in addition to any other existing duties or taxes by a decree passed on November 30, 1935, and effective immediately. The decree which authorized this surtax revised the exchange features of the Rumanian foreign trade control regulations. It provides for certain exchange premiums to Rumanian exporters, to be paid from funds derived in part from the above mentioned import surtax. It is understood that these premiums replace the system of paying exchange premiums to exporters.

Annual Report of Tariff Commission. The 19th annual report of the United States Tariff Commission for the period ending November 30, 1935, stresses the fact that during the past year it has assembled and made available basic economical and technical information for all agencies of the government interested in the tariff problem. Many hundreds of summaries of tariff information, and the accumulated data and experience of the Commission has been made available to the negotiating agencies. Members of the Commission and experts on the staff have served on numerous investigating and advisory committees, and have given general assistance to the Committee for Reciprocity Information.

The report cites a number of important investigations conducted. Comprehensive investigation of wood pulp and pulpwood by direction of the Senate is well under way as well as one making extensive surveys of the trade of Japan with the United States and of the present and prospective aspects of United States-Philippine trade relations. The Commission reports activities in a number of other fields, mentioning in detail its work on certain studies for Congress on problems in the fishing industry, a revised edition of its earlier study of alcoholic beverages, reports on phos-

phates, dyes and synthetic organic chemicals, and many cooperative projects with other government agencies on economic and administrative problems of mutual interest.

Although less active under the provision for adjusting rates of duty on the basis of comparative foreign and domestic costs of production, the Commission has nevertheless rendered a report resulting in reducing the duty on beer, and three other investigations at Congressional request relating to cotton cloth, frozen swordfish, and wool-knit gloves. One feature of the year's work in this field was the dismissal without prejudice of an accumulation of forty-four applications for rate-adjustment investigations on which for various causes the Commission had previously found no sufficient warrant for instituting investigations.

A résumé is given in the Commission's report of the work done under the import control clause of the National Industrial Recovery Act and the new function and procedure of import control under the AAA as amended last August is described. The appendices of the tariff Commission's report contains lists and tabulations relating to applications under the flexible tariff, changes made in the rates of duty since the passage of the Tariff Act of 1930, Commission publications, and the text of the provision for the control of imports under the AAA as amended and of the Executive Order for its operation.

Spain Discriminates. A more hopeful outlook on the Spanish market, established in the minds of American exporters by a recent Spanish decree authorizing the Exchange Control Board to extend importers a certificate showing the amount of corresponding foreign currency which the importer would receive at the proper time in settlement of the amount in pesetas, was reversed when American exporters who applied for these certificates in foreign exchange were recently advised that they were issued only to importers of British, French, Swiss and Dutch goods, and that other importers would receive only certificates in pesetas—a very different matter.

The basis for this distinction is the more favorable balance of payment position of Spain with the countries mentioned than with the United States. The State Department, we are advised, is aware of this condition and has protested already to the Spanish Government, but due to the fact that there have been three different governments in control during recent weeks, the State Department has not received a satisfactory reply to its protest. However, negotiations for a trade agreement between the United States and Spain are understood to be continuing.

Honduras Treaty Completed. The reciprocal tariff treaty with Honduras, negotiated under the provisions of the Reciprocal Trade Agreements Act of 1934, was signed on December 18 in Tegucigalpa, Honduras, by the American Minister to Honduras, Leo J. Keena, and the Honduran Foreign Minister, Armando Flores Fiallos. The treaty will become effective thirty days after it has been approved by the Government of Honduras and subsequently proclaimed by President Roosevelt, and will run for one year.

Concessions made by the United States relate to bananas, plantains, cocoa or cocoa beans, coffee, sarsaparilla root and raw deerskins, all of which have been bound to the free list during the life of the agreement. Duty reductions have been made on balsams, pineapples, guavas and mango pastes and pulps. Concessions made by Honduras of inter-

est to Connecticut industry are those on hand tools, cotton hosiery, cotton shirts and bath and toilet soaps. Other reductions were made on livestock, farm and dairy products, passenger automobiles, trucks and busses and fruits and meats.

* * *

Trade Agreement Treaties at a Glance. Trade agreements concluded since the beginning of the program of negotiation under the Reciprocal Trade Agreements Act of 1934 are those with Cuba, Belgium, Haiti, Sweden, Brazil, Colombia, Canada and Honduras. All are now in effect except the Colombian and Honduran treaties, the Canadian and Brazilian treaties being the last to become effective as of January 1, 1936.

All tariff concessions granted in the foregoing treaties (with the exception of Cuba) by the United States are automatically extended to every country in the world, except in the case of countries known to be discriminating against American commerce. Germany is the only country thus far to be deprived of the benefits of this feature of the Act. However, France and her colonies, Switzerland and Lichtenstein are scheduled to receive these benefits only until February 1 because of discrimination.

The Administration has announced its intention of negotiating treaties with Costa Rica, El Salvador, Guatemala, Nicaragua, Spain, Switzerland, Finland, Italy and France including her colonies.

WHY NOT FLY!

Continued from page 11

3000 feet (a reasonable cruising altitude) he can shut off his motor and glide to any field within a radius of 4 miles, choosing any open field within an area of about 50 square miles.

But even with these many points of safety the airplane, after all, is fundamentally an instrument of transportation between points on the earth's surface. Therefore, it must have adequate ground facilities—airports, airmarkings, beacons, radio aids, weather service, etc.

Airports are absolutely necessary to aviation. At the present time, some people feel that the average airport costs more than seems to be warranted by its use or its direct revenue. This, however, is not strictly true. An airport is as necessary to a town as are highways and harbors. Perhaps the port will never pay its own way in direct revenue, any more than a harbor or a highway will. But the presence of an airport in a town means that that community is tied in on the newest and fastest form of transportation. Perhaps nine-tenths of the people in the town claim that they never have, and never will, fly. Actually, however, they are personally affected by aviation in a thousand ways. Airmail is always available to them. Bank checks are sent to distant clearing-houses by air, in order to save loss of time and interest. Rush orders of serum are available for friends, critically ill. The service is ever at their door, to help them close a contract ahead of a competitor, or to bring a rush order of goods to meet an unexpected market. Speed is the essence of modern life and modern commerce. And aviation is the greatest exponent of speed.

The Air Marking Program

The business men of Connecticut are beginning to realize that fact; and there is no question that, within a few

years, the nineteen towns in the state that now have airport facilities of some type, will be joined by as many more towns that want and need them.

But airports are of no use unless the pilot can find them. In good weather, of course, an airport clearly stands out from the air. If, however, the visibility is reduced by haze, it becomes a more exacting task for the pilot to know where he is. To meet this need, the Connecticut Department of Aeronautics has undertaken an extensive airmarking campaign. At present, over 400 signs, with letters eight to fifteen feet high, have been painted on roofs throughout the state, by men under the jurisdiction of the Department, and at no cost to the owners of the property. But this number is not nearly enough. In the final analysis, every roof of suitable size should be marked. For the time being, it would suffice if every prominent roof were painted. Any community, of whatever size, has certain buildings that, from the air, stand out from the others. If these were properly marked, a great service would be accomplished.

Editor's Note. Manufacturers and commercial organizations owning flat or sloping buildings will do a great service for aviation in Connecticut by granting the State Department of Aeronautics permission to paint air-marking signs on their roofs. A simple letter communication to the Department at Hartford giving permission together with roof measurements is all the building owner needs to do toward contributing an air sign. State supervised employees will paint the signs.

In spite of airmarkings and airports, there is doubtless one thought still in your mind. Nearly every day, transport planes are flying through the clouds, or in the sunshine above them, and you can't help but wonder how they know where they are. It is not, as you must think, a problem of quick navigation and guesswork. The pilots of those ships are simply following a radio beam. These beams are sent out from stations all over the country, and are directed along the established air routes. The center band of the beam carries a certain signal, while on each side of the center a different signal is produced, indicating whether it is the left or the right side. Pilots follow the right edge of the center band, in order to avoid the possibility of collision with airplanes coming toward them. When the airplane passes over the transmitting station, there is a short break in the signals, and the pilot, knowing his altitude, direction of flight, and location of the transmitter with respect to the airport, is able to glide down to a safe landing.

In closing, a brief indication might be given regarding the strides that transport aviation is taking. In 1935, 860,000 passengers were carried by the scheduled airlines of this country. This is a 50% increase over the next high year. Air express gained 53%. And in our own state, we issued more pilot licenses than in any previous year, the greatest increase being in the student classification, which indicates a growing interest among the new element.

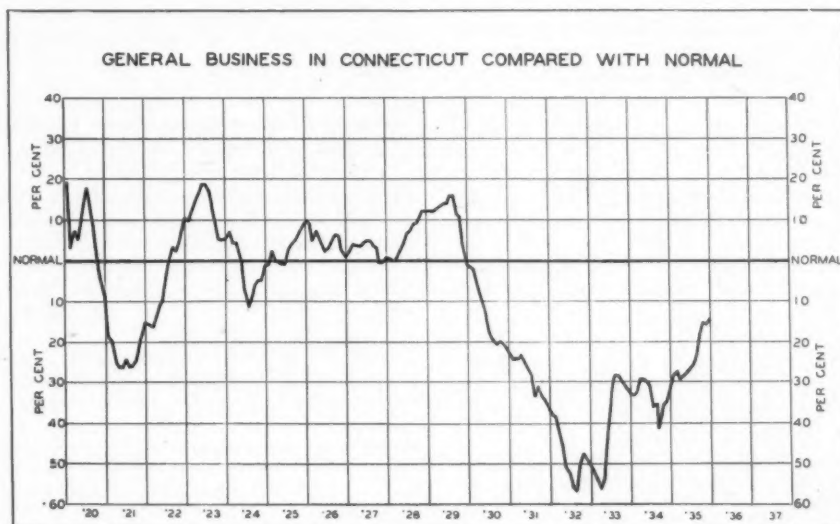
Aviation has a thousand uses. The nation has suddenly grown to realize that, with the greatly increased safety, those uses apply to everyone. Perhaps, on thinking it over, you may see where aviation can save you considerable time and money every year. At least, it is worth investigating; and if this article has interested you along these lines, it has served its purpose.

BUSINESS PATTERN

General Summary. During December, general business activity resumed the upward movement that had been in evidence during most of 1935 but which was interrupted by a small decline in November. The index of Connecticut activity which advanced to 14.5% below normal compared with 15.8% below a month earlier and 30.7% below in December, 1934, stood at the highest level since June, 1930. Factory employment and the number of man-hours worked in factories moved in different directions during the month, employment expanding and man-hours contracting. The increase in the former, however, seemed to indicate that the curtailment in the latter would be only temporary. Freight carloadings originating in Connecticut cities rose sharply over November while smaller

the present month was moderately above December. Freight carloadings increased and automobile production, after being reduced sharply during the two holiday weeks, expanded in the week ended January 11 to the level prevailing in the previous month. Steel mill operations, due to uncertainty resulting from the AAA invalidation, a decline in tin plate production and smaller than expected releases from the automobile industry has recovered only moderately from the year-end contraction. Favorable factors affecting steel include increased buying by railroads and increasing demand from the building industry.

During the four weeks ended January 4, wholesale prices in the United States moved horizontally, small advances in some commodities being offset by declines in others.



gains took place in metal tonnage carried by the New Haven Road and in building activity. Cotton mill activity in Connecticut declined moderately. Bank debits to individual accounts in the four weeks ended January 8 continued to exceed a year earlier by about 20%. During the first part of January, average daily freight carloadings increased somewhat more than seasonally over December.

In the United States, business activity experienced further improvement in December. Freight carloadings and the production of steel and pig-iron, adjusted for the customary seasonal changes, registered substantial increases over November. Advances also occurred in the production of electric power, lumber and zinc. Automobile output was slightly lower than a month earlier but more than twice the level of December, 1934. The weekly business index of the New York Times, which is a fairly reliable guide to the current trend in general business, moved horizontally during the three weeks ended January 4 but in the following week advanced to a new high for the current upswing. The average for the first two weeks of

The immediate effects of the Supreme Court decision on the AAA have been mild. Increases and decreases have taken place in the commodities directly affected but so far there has been no general deflation.

According to the National Industrial Conference Board, the cost of living in the United States advanced in December for the fifth consecutive month and was 0.6% higher than in November. Food advanced 1.3% over the preceding month while smaller increases took place in the price of clothing, rent, and fuel and lighting items.

Financial. The number of business failures during the four weeks ended January 4 increased 6% over the corresponding period a year earlier but gross liabilities of failures declined 42%. The total number and capital stock of new corporations formed were approximately the same as last year. Real estate sales decreased seasonally but exceeded a year previous by 19% indicating increased activity in the real estate market. The aggregate value of mortgage loans ran 47% ahead of the corresponding four weeks a year ago.

Construction. Building activity in Connecticut in December continued the improvement that had been under way since last January. The index of activity, which is seasonally adjusted and based on the square feet of floor space of building contracts awarded on an eight months' basis to allow for the average time necessary to complete a project, advanced to the highest level in three and a half years. The value of building permits issued in the four weeks ended January 4 was 143% above the same period a year earlier, and, with few exceptions, did not include the large number of PWA projects for which contracts were recently awarded.

During December, the seasonally adjusted daily average value of building contracts awarded in 37 eastern states shot up 50% over November and 185% over December, 1934. New residential building was up 210% over the same 1934 month; public work and utility projects rose 89% and other non-residential 350%. For the year as a whole residential building advanced 92% over the year previous while all new building increased 19%.

Labor and Industry. As indicated above, the trend of December manufacturing activity in Connecticut was somewhat spotty. The index of the number of man-hours worked declined to 12% below normal compared with -10.7% in November and -31.3% a year earlier. On the other hand, factory employment receded less than seasonally, the preliminary index rising to 4.3% below normal against -4.6% a month previous and -16.9% in December, 1934. In Bridgeport, Bristol, Hartford and New Haven, man-hours worked fell off slightly more than in previous years but in New Britain, an increase took place. For the 1935 compared with 1934, activity in Bridgeport showed an increase of 26%, Bristol 19%, New Britain 18%, New Haven 17%, Hartford 16% and Meriden 15%. Employment in Waterbury brass factories during December declined 2.5% from November but was 12% above a year earlier. In Stamford and Torrington, factory employment remained at the November level.

Available data relative to factory employment and payrolls in the United States indicate a less than normal decrease during December.

Trade. December department store sales, although somewhat below early predictions, were nevertheless quite satisfactory. The adjusted index compiled by the U. S. Federal Reserve Board rose to 84% of the 1923-25 average compared with 81% in November and 78% in December, 1934.

Transportation. The index of freight carloadings originating in Connecticut stood at 13.7% below normal last month, the highest level reached since July, 1931. On the entire New Haven Road, loadings of automobiles were abnormally high and the volume of building materials moved was 39% above last year. Carloadings of merchandise in less-than-carload lots fell off seasonally from the month before.

★ ★ ★

Rex Cole on Salesmanship—Cole, Rex

Written by a man who has spent a lifetime in actual selling work and has proved that he knows how to get results. He talks about human nature as it is, not as it should be. He is acquainted with the individual salesman's problems because he faced them all himself, and moreover he likes to sell.



Editorial Note: In this column will appear monthly, if the amount of good business literature warrants, a brief description of the books and pamphlets which, in the opinion of a business librarian and the editor, will be helpful to the business man. This month's suggestions are made by Miss Mildred Potter, Business Librarian, Hartford.

Job Hunting and Getting—Belden, Clark

Possibly the best book on job hunting that has been written. It is full of intelligent suggestions for a campaign—valuable list of job sources, advice on effective and ineffective avenues of approach, etc. Particularly helpful for the young executive.

Strategy of New Materials; a Study of America in War and Peace—Brooks, Emery

This book, which is published under the auspices of the Bureau of International Research of Harvard university and Radcliffe college, is devoted to a study of the strategic raw material position of the United States in contrast to that of the other industrial powers. It is illustrated by a large number of original maps and charts.

World Marketing—Collins, V. D.

A comprehensive guide to world marketing in the new era including specific discussion of sources of information, techniques for foreign contacts, price formulas, travel and shipping instructions, etc. Contains valuable facts in usable form.

Business Offices; Opportunities and Methods of Operation—Harris, G. L.

Mr. Harris, vice-president of the American Management Association, has written a book which will be useful to all office executives and workers who wish to have an overall view of office functions and operations.

1000 Ways to Make \$1000.00—Minaker, F. C., Editor

Book contains practical suggestions based on actual experience, and includes true episodes in the lives of such men as Gustavus Swift, Charles E. Hires, John H. Patterson, J. C. Penney, John Wanamaker and countless others.

Psychology for Executives—Revised edition—Smith Elliott Dunlap

Although psychology can be applied by the psychological expert to certain human problems of management, yet most of these problems are so pressing and so personal that the executive must handle them himself. What he most requires of psychology, therefore, is aid in understanding the human aspects of his problems so that he may more effectively arrive at his own solutions. It is in the effort to provide such aid that this book has been written.

AVIATION

Continued from page 8

lighted for night landings as follows: Rentschler Field, East Hartford, Brainard Field, Hartford, and the New Haven Airport. Three others are partially lighted but are inadequate for safe practice in night landings by passenger carrying commercial aircraft. In addition there are 50 to 100 fields which may be used as emergency landing fields or as a base for certain types of planes, if and when permission is given by the Department of Aeronautics.

In airmarkings, Connecticut ranks around the top with roof air signs to guide pilots to landing fields. It still needs more (See article "Why Not Fly" in this issue) to adequately mark it and give it undisputed leadership in this category among the several states.

Returning to Pratt & Whitney Aircraft development where we left it in its new "Bee-Hive" Dec. 30, 1929, while deploying the activities of its sister companies in United Aircraft, we find its 1929 production the highest peak in its existence. From that year on, its production followed the business curve downward to less than half of the 1929 production figures, but it is now moving upward fast toward the 1929 level. It now makes, in addition to the original Wasp and Hornet engines, the "Wasp Jr." (300-420 H.P.); the Hornet up from 525 to 700 H.P.; the "Twin Wasp Jr." (700 H.P.); the "Twin Wasp" (850 H.P.). The "Twin Wasp" series, developed in the spring of 1933 for military service, are two-row fourteen cylinder engines. They have since been used by commercial air lines.

In 1934 New Deal development made it necessary for a split up of the United Aircraft and Transport Co. into manufacturing and commercial divisions in order that the United Air Lines could comply with Postmaster General Farley's ruling on bidding for air mail contracts. United's officials split the corporation into three parts as follows:

1. United Airlines
2. Boeing Airplane Co. of Seattle
3. Sikorsky Aircraft Division

Then United Aircraft formed two subsidiaries—United Aircraft Mfg. Corp. and United Aircraft Exports Corp. As operating divisions under United Aircraft Mfg. Corporation are the following divisions:

1. Pratt & Whitney Aircraft Division
2. Chance Vought Aircraft Division
3. United Aircraft Corporation.
4. Hamilton Standard Propeller Division
5. United Airports of Connecticut

All foreign sales representation is now carried on through the United Aircraft Exports Corp. which at present has offices in the Hague, Netherlands, and Shanghai, China.

The United Airports of Connecticut owns and operates Rentschler Field, East Hartford, one of the best flying fields in the East. There are located facilities for completely overhauling and servicing Pratt & Whitney engines as well as adequate hangar space for airplane storage. One of the large hangars on the field houses all experimental flight test work for P. & W. and Chance Vought, while a portion of the other is utilized as the Hartford ticket office and waiting room of American Airlines, which operates a convenient and fast air service between Hartford, Boston and New York.

All subsidiary companies of United Aircraft are actively engaged in advancing the science of aeronautics through ample development quarters.

All products of the United Aircraft Mfg. Corporation are made from materials which meet the most rigid specifications by test. Precision manufacture, rigid inspection and thorough testing are employed to guarantee the safety, dependability and all other essential characteristics in the production of United's engines, airplanes and propellers.

Precision is the watchword of the United Family of companies—one of the outstanding reasons why its products have forged ahead to blaze the trail for the aviation industry; to hang up with its Wasp and Hornet engines 12 world's records and many more American records; to carve new accomplishments with Vought Corsairs, Sikorsky "Clippers" and Hamilton Standard propellers; to bring added glory to an insignificant area on the earth's surface—Connecticut—preeminent for over a century in its precision-built gifts to the world.

With United Aircraft Mfg. Corp. in her midst, Connecticut ranks first in airplane engine production. Over 9000 engines is the United 10 year record. In plane production her rank is low in numbers as compared to some other states but at the top from the standpoint of producing a leader in a particular type of plane. In propellers she also leads with Hamilton Standards.

In recent years old man—General Trend—has been moving westward toward the "land of the Gold Rush" with one aviation plant after another. And now southern sunshine the year 'round and tax free years are the competitive baits offered by Florida for its cut of the aviation cake. Difficulty of winter seaplane testing in northern climes also may have been stressed by the wooing emissaries of genial Governor Dave Sholtz. Whose pantry will be raided if any, cannot be foretold, but the East and Mid-West are most vulnerable.

The developments of Connecticut's aviation industry should be the vital concern of every citizen and skilled worker of the state. For the millions that are today being paid in salaries and wages and services are but a sample of the real meal to come in the next 10 to 25 years.

Those air minded leaders who head the United Aircraft Corporation, which is truly Connecticut's aviation industry are: Frederick B. Rentschler, chairman; Donald L. Brown, president; C. W. Deeds, president of the Export Corp. and general manager of Pratt & Whitney Aircraft; Eugene E. Wilson, vice president of the corporation and general manager of Chance Vought and Sikorsky; George S. Wheat, vice president; Raycroft Walsh, general manager, Hamilton Standard Propellers; and B. L. Whelan, general manager of United Airports Division.

* * *

Business Census for Hartford County. Seventy-three Federal enumerators started January 2 to take a special Federal census of all types of business and manufacturing establishments in Hartford County. This is part of a nationwide census to compile business data which is being financed through the Works Progress Administration.

The work of the enumerators is immediately under the direction of Walter J. Collopy, supervisor of the Hartford District and John Edward Doyle, his assistant. Area supervisor for Connecticut and Rhode Island is H. N. Jeffries, employed by the Bureau of the Census, Department of Commerce.

SERVICE SECTION

On account of space limitations, the material and used equipment items offered for sale by Association members have not been classified by sizes or usage best adapted. Full information will be given on receipt of inquiry. Listing service free to member concerns. All items offered subject to prior sale.

●● Materials for Sale

COLD rolled steel in coils and in squares, condulets and fittings, remnants of covering materials—velours, velvets, mohair, tapestries, denims, chintzes, and cretonnes, semi-finished and castellated U. S. S. nuts, pulleys, flat and crown face-steel and cast-iron; new shaft hangers, brass wire, brass rods, aluminum tubing, cold drawn steel—mostly hex; miscellaneous lot of material used in the manufacture of molded rubber parts and flooring, knife switches—new and many sizes; car-load C. I. drop bases; lead pipe, lead sheet, acid proof pipe fittings, 124 bars screw stock varying thicknesses and lengths, white absorbent tissue process from cotton, rotary convertor, colors and dyes—large variety, lacquers—several hundred gallons in assorted colors; and soft anneal copper with high silver content in rolls. J. H. Williams' wrenches in assorted sizes.

●● Equipment for Sale

ACCUMULATORS, annunciators, baskets, beaders, beamers, bearings, belt stretchers, blowers, boilers, braiders, bronze runners, cans, cards, woolen; car loaders, chain, chairs, chamfer, clocks, time recorders; clock systems, colors and dyes, compressors, condulets, convertors, conveyors, cookers, cooking utensils, doublers, draftsman's table, drop hammers, drops, board; drums, drying racks, dyes, engines, evaporators, extractors or percolators, fans, filtering carbon, folders, forming rolls, frames, furnaces, gears, generators, grinders, grindstones, grinding wheels, guiders, headers, lamp shades, lathes, lifters, looms, De Laski circular; machines, automatic; machines, calculating; machines, compressing; machines, dieing; machines, drilling; machines, filing; machines, filling; machines, folding; machines, knitting; machines, mercerizing; machines, milling; machines, pipe-cutting and threading; machines, pleating down; machines, riveting; machines, screw; machines, threading; machines, tongue and groove; machines, washing; mercerizer equipment; millers, mixers, mills, mills rubber; mixing rolls, motors, oil circuits; oven drawers, paints and lacquers; panels, planers, plungers, pointers, presses, profilers, pulley drives, pumps, reamers, receivers, rheostats, safe cabinets, saws, scales, screens, seamers, shapers, shears, spindles, spinning mules, steam tables, steam warmers, stitcher, 192 monitor corner box switches, tables, tanks, toilet equipment, trucks, ash can; tube closers; wire, wire screw and yarders.

●● For Sale or Rent

FOR SALE. One 3½ Bliss toggle press in good condition. Address S. E. 76.

FOR SALE. 1 Bigelow H. R. T. boiler. 53 B. H. P. Will pass inspection. With fittings. Address S. E. 79.

FOR SALE. One No. 94 Monarch Oil Burning Furnace, 2,000 lbs. capacity, complete with all accessories including electrical equipment. Address S. E. 90.

FOR SALE. Buffing and polishing sand for sale. Willing to give sample if interested. Address: Rita Harrington, 1273 Main Street, Hartford, Connecticut.

●● Wanted to Buy

WANTED, USED—1 Portable Recording Wattmeter, 3 Phase, 3 Wire, 60 Cycles, 230 and 575 Volts. 5 Amperes, Synchronous Motor Drive (1" per hour and 1" per minute suggested); 2 Current Transformers for above, 20-25-40-50-800-1,000 Ampere Rating; 1 600-KVA, 440 Volt, 3 Phase, 600 RPM Alternating Current Generator, with Exciter; Exciter preferably directly connected to Generator. Generator must have amortisseur windings. Address S. E. 97.

NEW PRODUCTS WANTED. A well equipped established Connecticut manufacturer wants to acquire additional lines of metal products or tools having a normal manufacturing season during the summer

and early Fall months. Would prefer an established line that can be distributed through the hardware trade. Address your offerings to S. E. 89.

FOR SALE. Bliss Gang Press in good condition. 100" between up-rights. Equipped with punches and dies. Can be seen in operation. For sale very reasonable. Waterbury Mattress Company, Benedict and West Clay Streets, Waterbury, Connecticut.

●● Employment

CHEMICAL ENGINEER. Graduate of Rensselaer Polytechnic Institute in 1932. Eight months' experience in construction and purchasing departments of the Carbicle and Carbon Chemicals Corporation at Whitney, Indiana. At present employed as a factory hand in Connecticut plant. Age 27. Would like position in chemical, purchasing or other technical departments of industrial organization. Hartford or vicinity preferred. Address P. W. 307.

STATISTICIAN, COST AND PAYROLL CLERK. Man with over 20 years' experience in insurance statistical work, payroll, cost and production control work, as well as several years' experience in sales work, desires steady position at nominal salary. He is a family man both capable and dependable. Address P. W. 313.

PRODUCTION MANAGER. Man with broad and basic training and diversified experience in manufacturing production management in several large industries and more recently in charge of production for 14 years in the largest plant of its kind in the state, is now available for another connection. References from last employer given on request for interview. Address P. W. 316.

PURCHASING AGENT AND SALESMAN. Man with broad experience in purchasing and selling covering a period of more than 20 years desires to locate a position in either of these fields with another Connecticut manufacturer, distributor or jobber. His experience has been with a manufacturer of lighting fixtures, brass novelties and lamps which also operated iron and brass foundries. Address P. W. 318.

DRILL PRESS OPERATOR AND ALL-ROUND FACTORY MAN. Young man in early 30's who has had an all-round experience as a factory hand, drill press operator and assistant plater in a brass plant desires to locate with a Connecticut manufacturer. In addition to this experience he has also done clerical work, gave riding lessons (horsemanship) and had over a year's experience in CCC forestry work. Address P. W. 319.

EXECUTIVE AND UTILITY BUSINESS MAN. A man who has operated his own business and who has done purchasing, general accounting, office managerial and insurance work desires new connection because of closing out on January 1 the last of his work with a large construction company. The majority of his experience however has been in the manufacturing field. For references and further details address P. W. 320.

ACCOUNTANT AND PRODUCTION PLANNER. Married man, 34 years of age who has training in higher accounting, cost accounting and business administration and experience covering a period of 13 years in planning and production work, manufacturing costs and supervision work desires position in Connecticut or New England in answer to his capabilities. Responsible recommendations furnished on request. Address P. W. 321.

ACCOUNTANT AND BOOKKEEPER. Man thoroughly trained and experienced over a period of 20 years desires position as accountant or bookkeeper. References upon request. Address Accountant, 9 Sherman St., Hartford, Connecticut.

COMMERCE DEPARTMENT EXECUTIVE. Young man in early thirties who has had broad business experience in both the domestic and foreign fields for the Bureau of Foreign and Domestic Commerce as a sales promotion man, market analyst, personnel manager and office executive, and who more recently has been in other executive positions with the government, desires connection with manufacturer or commercial organization. His experience qualifies him for sales, personnel, sales promotion or an office management position. Address P. W. 322.

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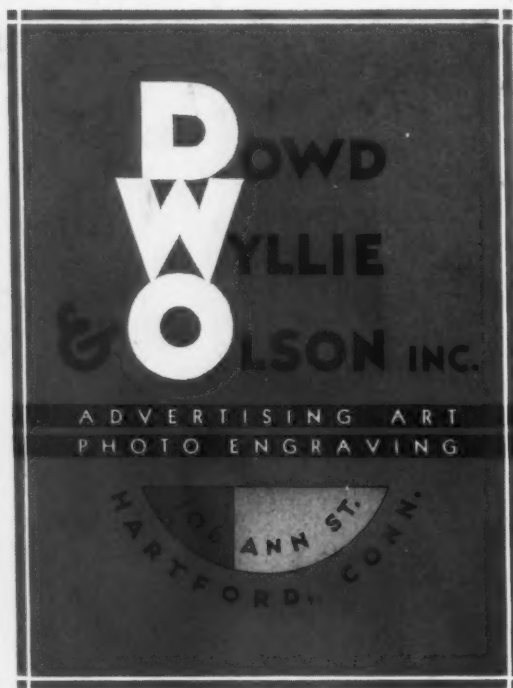
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